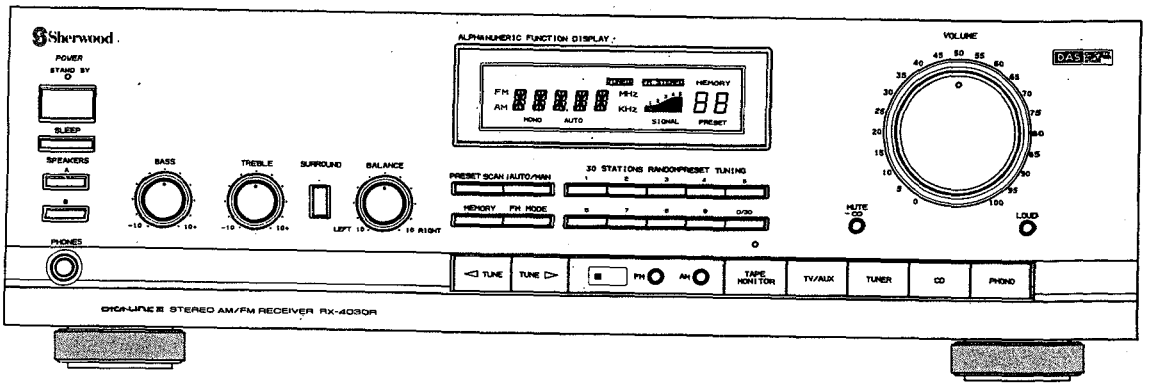
SERVICE MANUAL

RX-4030R

AM/FM STEREO RECEIVER



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Sherwood

SAFETY PRECAUTIONS

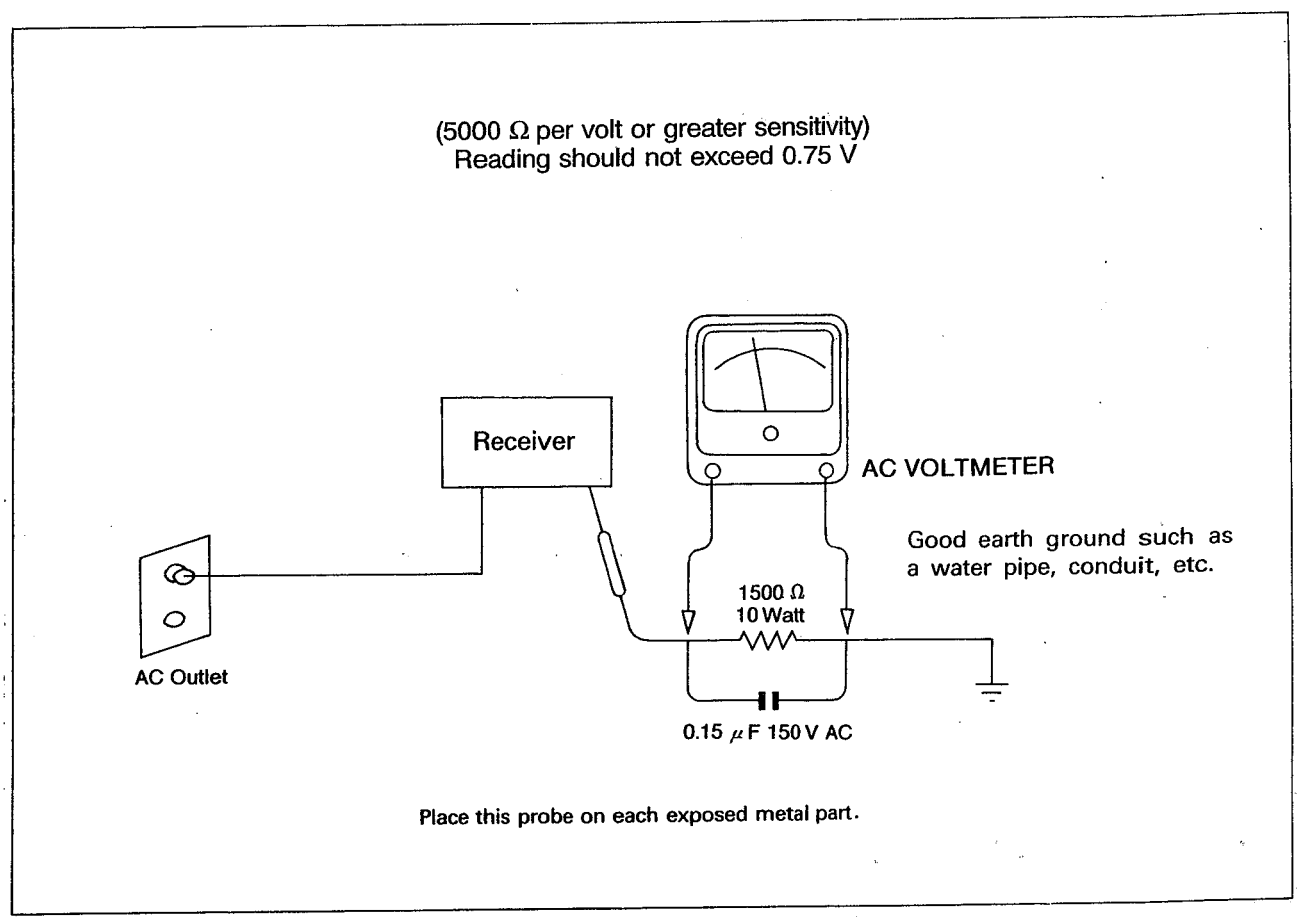
WARNING

Service Should not be attempted by anyone unfamiliar with the necessary precautions on this player. The following precautions are necessary during servicing.

1. Many electrical and mechanical parts in this player have special safety characteristics that often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements: electrical components having such features are identified by ⚠ in the schematic diagram and the parts list.

   Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characterstics as specified in the parts list may create shock, fire, or other hazards.

2. Before returning the set to the customer, always do an AC leakage current check on the exposed metal parts of the cabinet, such as terminals, screw heads, metal overlays, etc., to be sure the set is safe to operate without danger of electrical shock.
   Plug the AC line cord directly into a 120 V AC outlet**(120 V AC version only)**. (Do not use a line isolation transformer during this check.)
   Use an AC voltmeter, having 5000 Ω per volt or greater sensitivity, in the following manner: Connect a 1500 Ω 10 watt resistor paralleled by a 0.15 μF 150 V AC capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metal parts, one at a time. Measure the AC voltage across the combination of a 1500 Ω resistor and a 0.15 μF capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metal part. Voltage measured must not exceed 0.75 V RMS. This corresponds to 0.2 mA AC.
   Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.


(5000 Ω per volt or greater sensitivity)
Reading should not exceed 0.75 V
Receiver
AC VOLTMETER
Good earth ground such as a water pipe, conduit, etc.
1500 Ω
10 Watt
AC Outlet
0.15 μF 150 V AC
Place this probe on each exposed metal part.

SPECIFICATIONS

Audio Section

Power Output, Continuous RMS with no more than 0.3% THD;
- at 8 ohms, 40-20,000 Hz ..... 60 W+60 W
- at 8 ohms 1 kHz ..... 65 W+65 W

Intermodulation Distortion, 60 Hz : 7 kHz=4:1 Smple
- 60W output at 8 ohms 0.3%

Damping Factor at 1 kHz 8 ohm 50

Input Sensitivity for 50 W output 8 ohms at 1 kHz;
- PHONO ..... 2.5 mV
- AUX ..... 150 mV

Phono pre-amp input overload; at 1 kHz, 0.1% THD ..... 170 mV
at 10 kHz, 0.1% THD ..... 750 mV

Signal to Noise Ratio, IHF "A" wtd/unwtd;
- PHONO ..... 75/67 dB
- AUX ..... 92/85 dB

Frequency Response;
- PHONO, RIAA 30-20,000 Hz ..... ±0.5 dB
- AUX ..... 5 Hz-40 kHz

Tone Control;
- BASS at 100 Hz ..... ±10 dB
- TREBLE at 10 kHz ..... ±10 dB

Loudness control;
- at 100 Hz ..... ±7.0 dB
- at 10 kHz ..... ±3.0 dB

Channel Separation at AUX, input shorted;
- at 100 Hz ..... 60 dB
- at 1 kHz ..... 60 dB
- at 10 kHz ..... 50 dB

FM Section

Tuning Range;
- for USA/Canada version ..... 87.50-107.90 MHz
- for Europe/Australia version ..... 87.50-108.00 MHz

Scanning Frequency Interval(Auto/Manual)
- for USA/Canada version ..... 200 kHz
- for Europe/Australia version ..... 50 kHz

Usable Sensitivity IHF at S+N+D/N=30 dB ..... 2.0 μV(11.2 dBf)

50 dB Quieting Sensitivity, Stereo ..... 55 μV(39.2 dBf)

THD at 1 kHz, 100% Mod.; Mono 0.2%
Stereo 0.4%

Stereo Separation at 1 kHz ..... 45 dB

Signal to Noise Ratio IHF; Mono ..... 68 dB
Stereo ..... 65 dB

Frequency Response 20Hz-15 kHz ..... +0.5/-3 dB

Audio Output Voltage, 1 kHz 100% Mod. ..... 600 mV

De-emphasis;
- for USA/Canada version ..... 75μ sec
- for Australia/Europe Version ..... 50μ sec

AM Section

Tuning Range;
- for USA/Canada version ..... 520-1610 kHz
- for Australia/Europe version ..... 531-1602 kHz

Scanning Frequency Interval(Auto/Manual)
- for USA/Canada version ..... 10 kHz
- for Australia/Europe version ..... 9 kHz

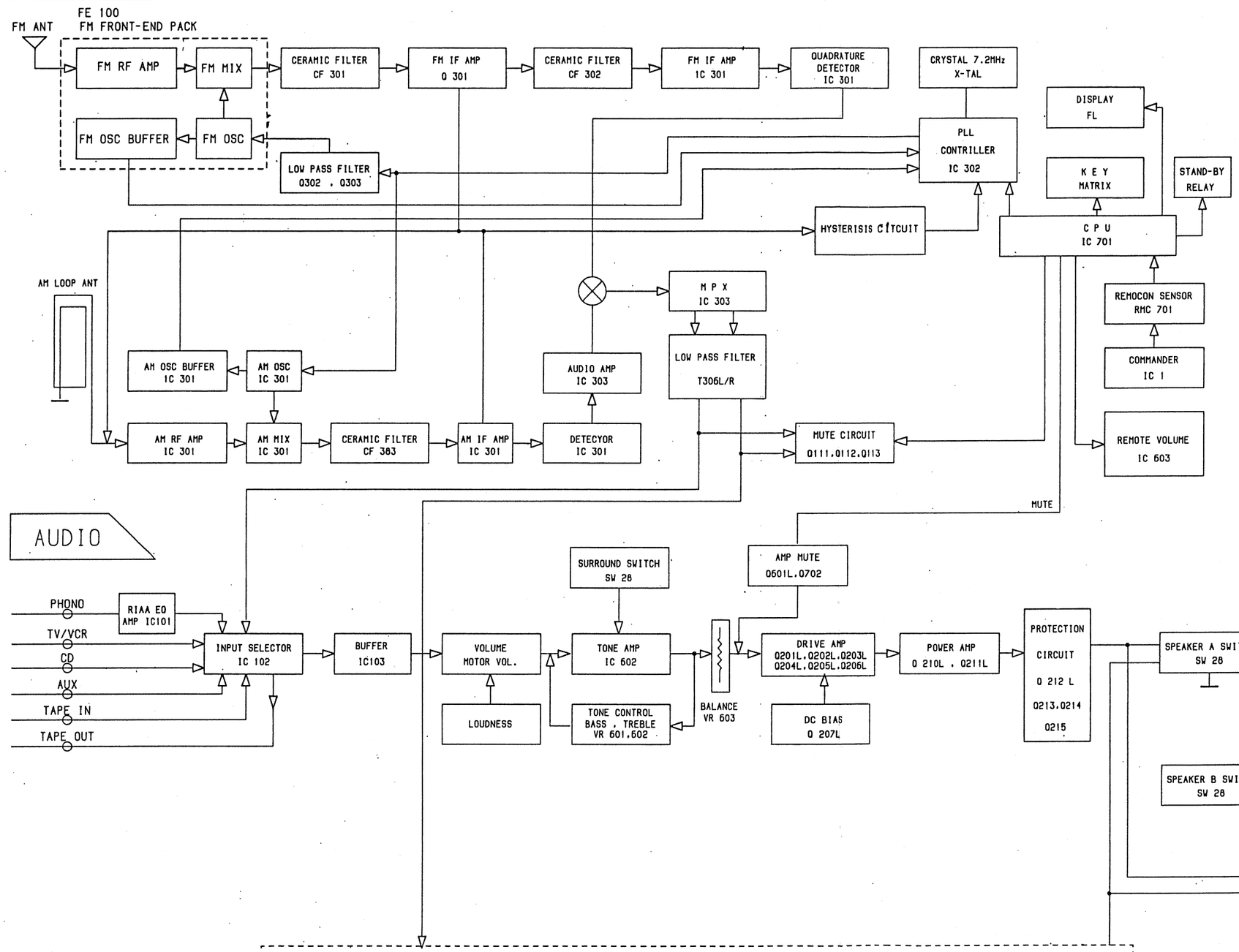
Usable Sensitivity IHF at S+N/N=20 dB, Loop Antenna	800 μV/m
Signal to Noise Ratio, 30% Mod. Ref.	45 dB
Audio Output Voltage, at 400 Hz, 30% Mod.	150 mV
Power Consumption	
for 120 V 60 Hz	200 W
for 220/240 V 50 Hz	300 W
Power requirement;	
A : USA/Canada version	120 V 60 Hz
B : Multi-version	120.220 V 60/50 Hz
C : General European version	220 V 50 Hz
D : West German/Italian version	220 V 50 Hz
E : U.K/Australian version;ion	240 V 50 Hz
F : Swiss/Scandinabian version	220 V 50 Hz
Dimensions (W×H×D)	440×125×325.5 mm 17.3×4.9×11.0 inch
Weight(Net)	7.2 Kg(16lbs, 13oz)

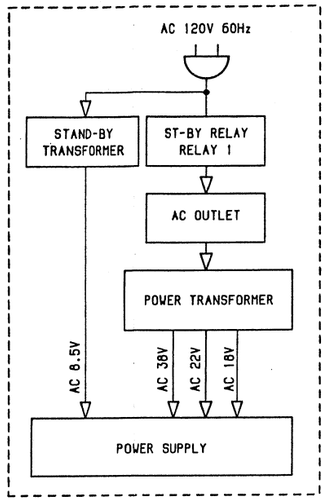
Note : Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on the American(A) standard, and provides information on regional circuit modification through use of alternate schematic diagrams or wiring diagram, and information on regional component variations through use of parts list. Design and specifications subject change without notice for improvement.

BLOCK DIAGRAM

Model No. : RX-4030R

TUNER

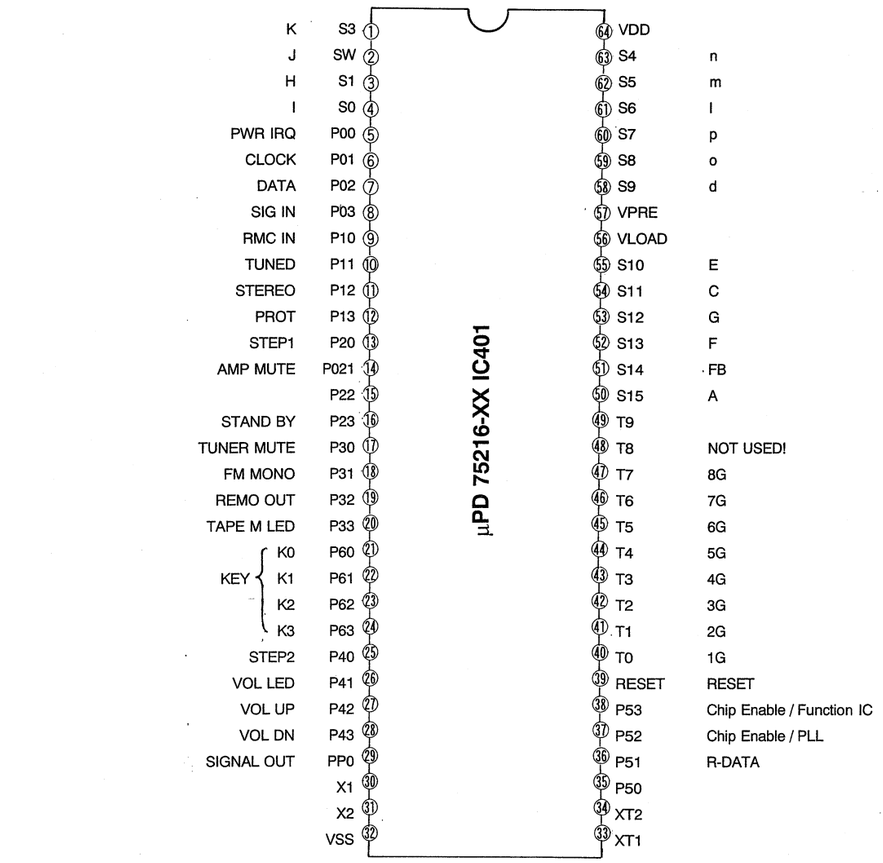




CIRCUIT DESCRIPTION

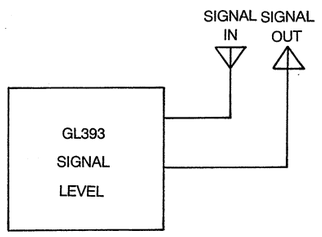
4bit CMOS Microprocessor, μPD-75212, Dwp-425

Pin Assignment



*STEP(BAND) SELECTOR

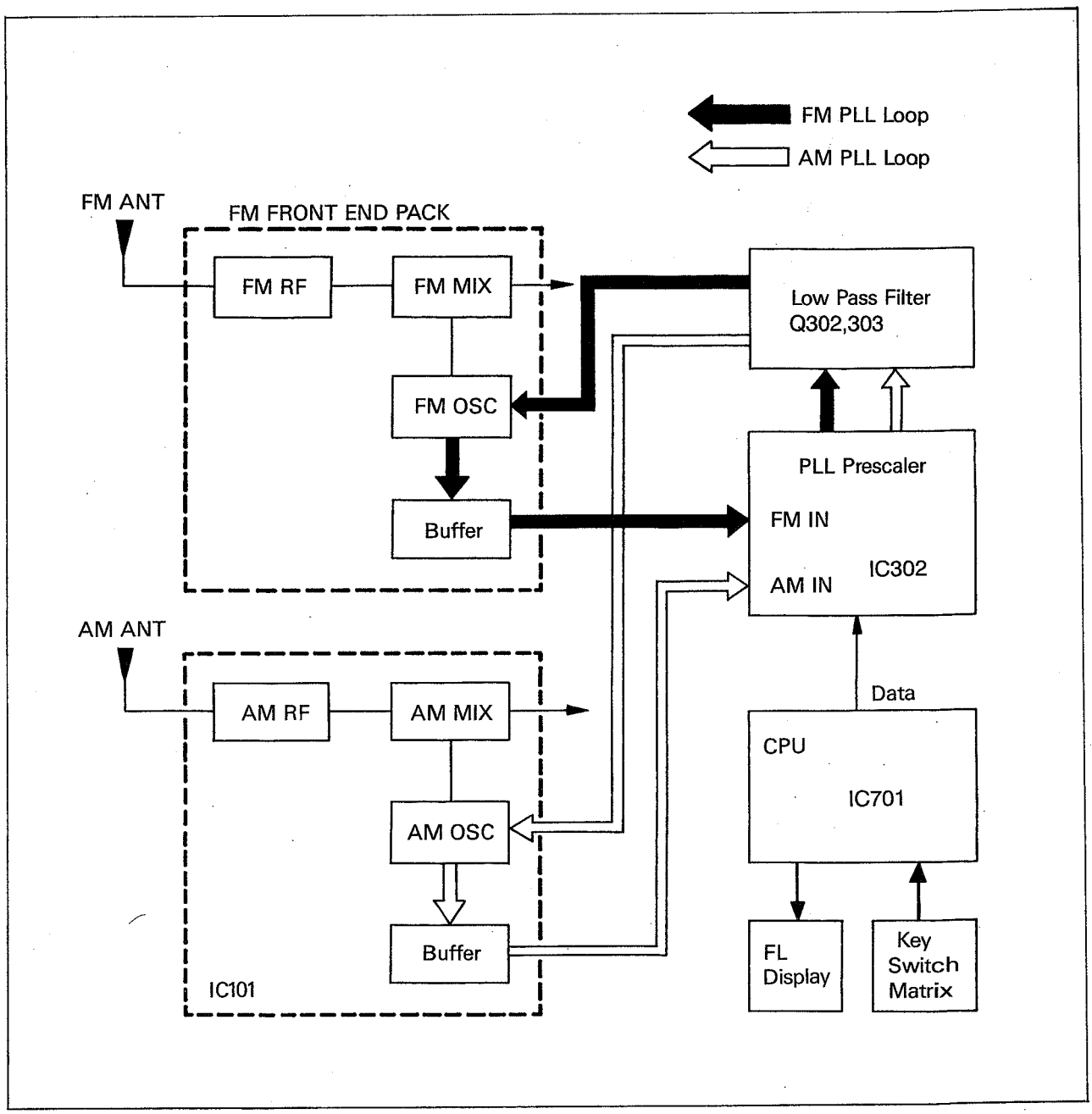
	13	25
U S A	1	1
K O R	0	1
E U R	0	0



Input and Output Terminal Functions

PIN NO.	PIN Name	I/O	Description
1 ~ 4	S3 ~ S0	O	FIP segment output
5	P00	I	Power Interrupt.
6	P01(Clock)	O	Function IC & PLL IC control(Serial data)
7	P02(data)	O	Function IC & PLL IC control(Serial data)
8	PO3	I	GL393(Comparator) data Input.
9	P10	I	Remote control data input
10	P11	I	Data input when tuner is receiving signal.
11	P12	I	Data input when tuner is receiving stereo signal.
12	P13	I	Data input from AMP Protection circuit.
13	P20	I	Tuner step data
14	P21	O	AMP mute control
15	P22	O	N.C
16	P23	O	Power ON / OFF control
17	P30	O	Tuner mute control
18	P31	O	FM Mono control
19	P32	O	DIGI-LINK Ⅲ Remote control data output
20	P33	O	Tape monitor LED ON/OFF control
21 ~ 24	P60 ~ P63	I	KEY Matrix data input
25	P40	I	Timer step data
26	P41	O	Volumn LED ON/OFF control
27	P42	O	Volumn motor control
28	P43	O	Volumn motor control
29	PP0	O	Pulse output
30	X1	I	Main clock input
31	X2	I	Main clock input
32	VSS	I	Main clock input
33 ~ 34	XT1 ~ XT2		OPEN
35	P50	O	OPEN
36	P51	O	Remote control data output for only Mechanical Deck
37	P52	O	Chip enable to PLL IC(LM7001)
38	P53	O	Chip enable to function IC(LC7821)
39	RESET	I	Reset Input
40 ~ 47	T0 ~ T7	0	FL display digit output
48 ~ 49	T8 ~ T9		OPEN
50 ~ 55	S15 ~ S10	O	FL display segment output
56	V_{LOAD}		FIP higl-voltage negative supply voltage
57	V_{PRE}		FIP pre-driver negative supply voltage
58 ~ 63	S9 ~ S4	O	FL display segment output
64	VDD	I	Positive power supply

Digital Tuning System Description



Control Key and Mode Switch Matrix

Searching for Station

Automatic Tuning

Pressing the Up or Down key for a moment causes automatic up or down searching for a station at the speed of 180ms/ch until the terminal activates (active high) or any key is pressed.

Manual Tuning

Momentarily pressing the Up or Down button tunes to the next channel and holding down the button for more than 0.5 seconds allows the Tuner to move up or down the entire band at the speed of 180ms/ch until the key is released.

Memory Tuning

Memory

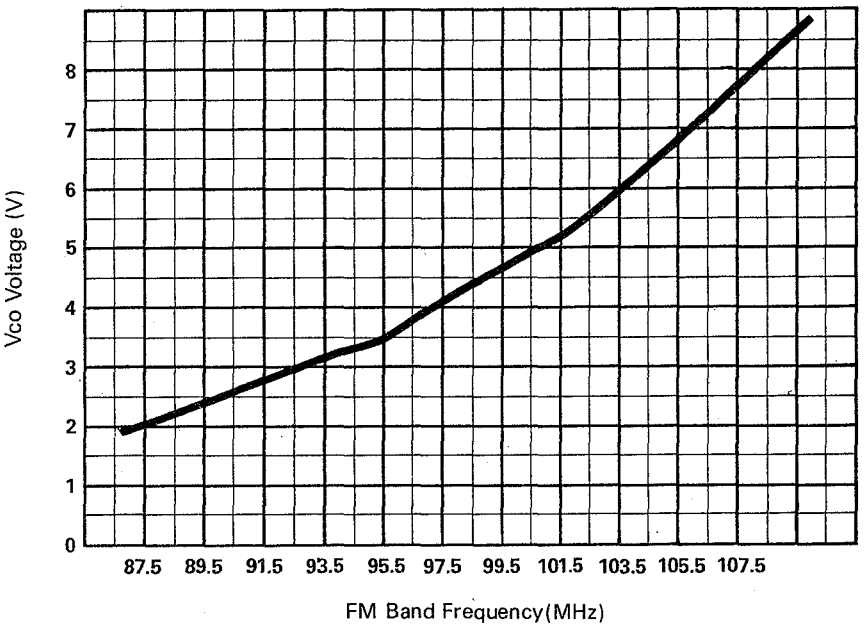
The tuning information is stored into an internal RAM by pressing the MEMORY key and then the desired memory tuning key within 8 seconds from the time the MEMORY key is initially pressed. If no key is pressed during this 8 sec. period, the MEMORY function is cancelled.

M1 to M10

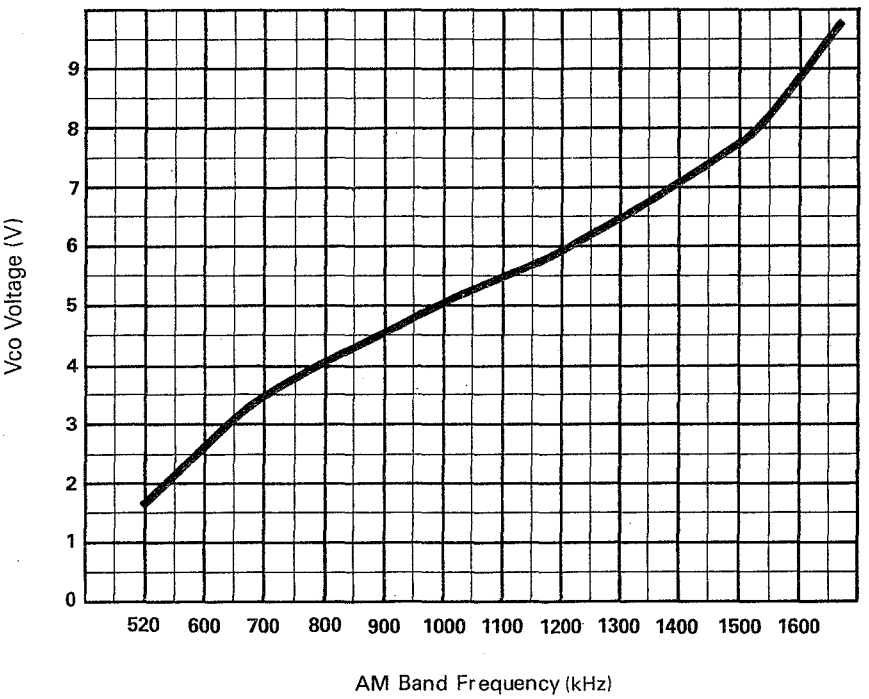
Thirty AM and FM stations can be recalled from internal RAM. When it is switched from one band to the other band, the Tuner tunes to the station last tuned on that band. Each time a station is changed, the controller provides a signal to mute the tuner.

		POWER	SLEEP			CPU PIN NO.
						61
Y	Y	MUTE Y	TAPE monitor Y	FM Y	AM Y	63
Y	Y	PHONO Y	CD Y	TV Y	TUNER Y	62
Y	Y	PRESCAN Y	AUTO MANU Y	FM MONO Y	MEMORY Y	1
Y	Y	UP △ Y	DOWN ▽ Y	0 Y	5 Y	2
	Y	7 Y	6 Y	8 Y	9 Y	3
	Y	2 Y	1 Y	3 Y	4 Y	4
		21	22	23	24	

Vco vs. FM Band Frequency Curve



Vco vs. AM Band Frequency Curve



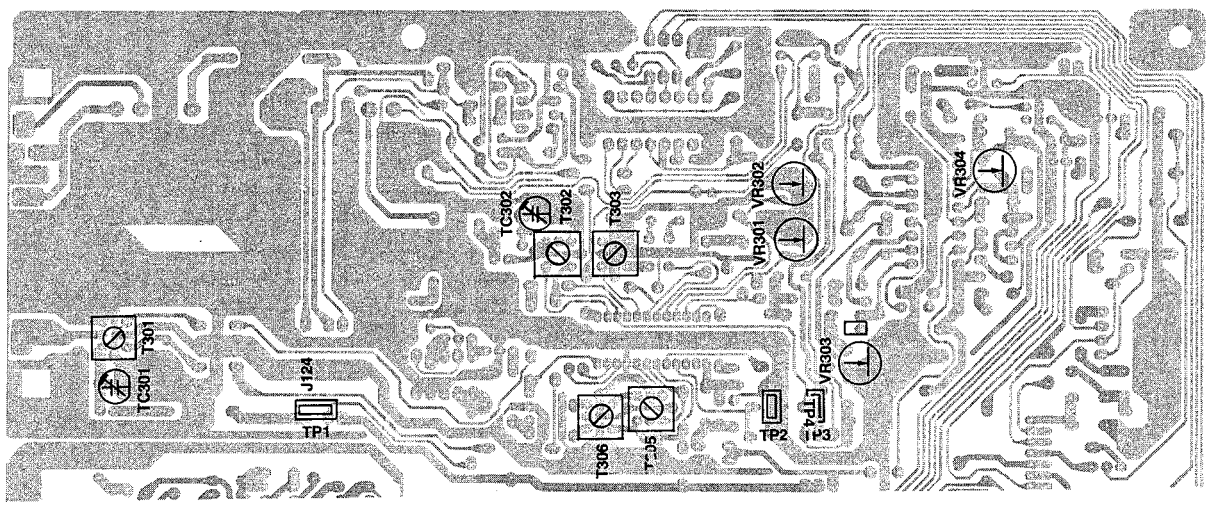
ALIGNMENT PROCEDURES

Equipment Required

- AM signal generator
- Oscilloscope
- AC voltmeter
- FM signal generator
- Stereo modulator
- Audio generator
- Distortion meter
- DC voltmeter
- Frequency counter

Note: Remove line cord antenna from FM external antenna terminal when aligning.

Alignment and Test Points (Tuner P.C.Board)



AM IF and RF Alignment

Preparation

1. Output of Signal Generator should not be higher than necessary to obtain an optimum output reading.
2. Signal Generator Modulation: 30%.
3. Switch: Press to AM.

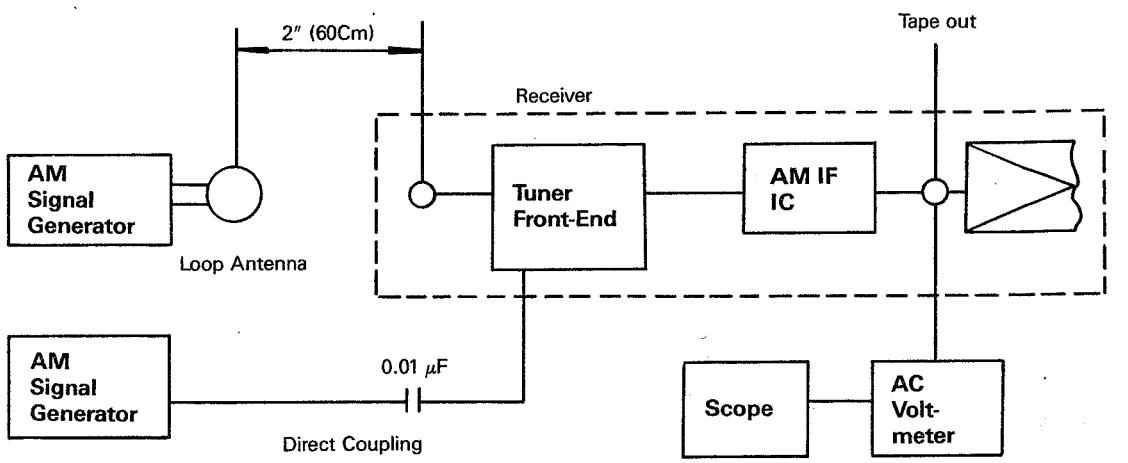
Step	Signal Generator Frequency	Receiver Frequency on the Display	Equipment Connection	Adjustment Point	Adjust for
1	450 kHz (400 Hz, Mod.)	Place at a non-interference spot around 600 kHz	AC voltmeter to TAPE OUT jack.	T303 (IFT)	Maximum reading
2	600 kHz (400 Hz, Mod.)	600 kHz	Same as Step 1.	T301 (ANT Coil)	Same as Step 1
3	1400 kHz (400 Hz, Mod.)	1400 kHz	Same as Step 1.	TC3 (ANT Trimmer)	Same as Step 1
4	1000 kHz (400 Hz, Mod.)	1000 kHz	FL display TUNED indicator	VR302	Indication on receiver with output of 500 μV/m

FM IF Alignment

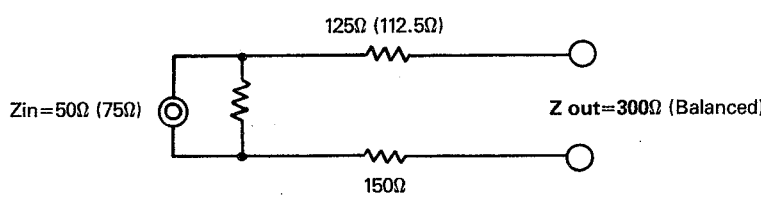
Preparation

1. Signal Generator output should be no higher than necessary to obtain an optimum output reading.
2. Switch: Press to FM.
3. Signal generator deviation: 75 kHz.
4. Be sure to disconnect FM line cord antenna during alignment.

Step	Signal Generator Frequency	Receiver Frequency Display	Equipment Connection	Adjustment Point	Adjust for
1	98.1 MHz (1 kHz, Mod.)	98.1 MHz	Distortion meter to TAPE OUT jack	T306	Minimum distortion
2	98.1 MHz (1 kHz, Mod.)	98.1 MHz	Same as Step 1	VR301	Zero reading on AC voltmeter with SSG output level of 6μV



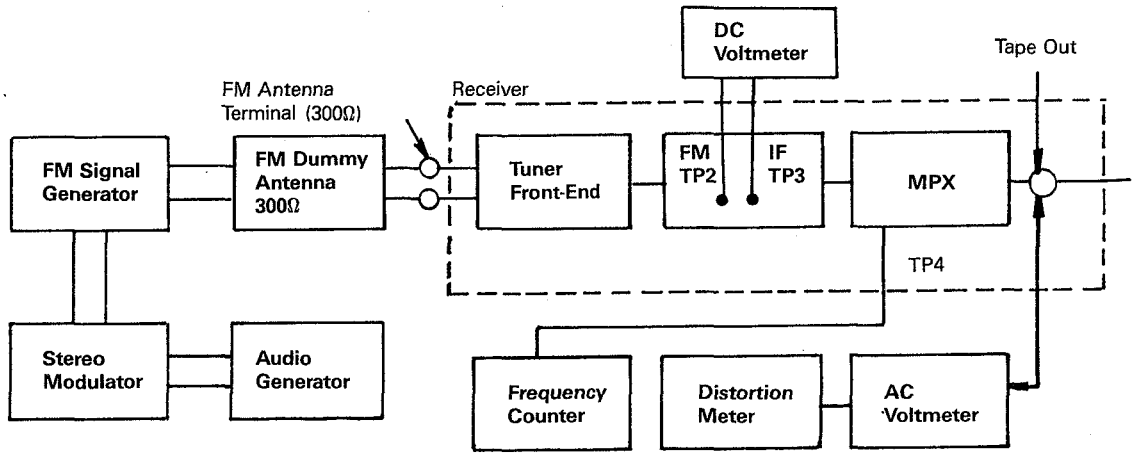
AM Alignment Connection



FM Dummy Antenna to 300Ω Antenna terminal of receiver

FM Dummy Antenna

MPX Alignment



FM RF/IF and MPX Alignment Connection

Preparation

1. Switch: Press to FM.
2. Tune for 98 MHz on band.
3. Signal Generator output level: 1000 μV.
4. Deviation: 75 kHz, at 100% modulation of composite signal.
5. Connect Signal Generator to FM antenna terminal through FM dummy antenna (300 Ω).

Step	19kHz Modulation Level	Signal Generator Frequency Setting	Output Indicator Connection	Adjust	Adjust for
1	Pilot off	Carrier only	Frequency counter connect to TP4 (HOT) of PCB and ground	VR303	76kHz
2	8% mod.	Composite to channel 1 kHz R	AC voltmeter to TAPE OUT jack of R channel	—	Adjust for about 450 mV of audio output
3	8% mod.	Composite to channel 1 kHz L	AC voltmeter to TAPE OUT jack of R channel	VR304	AC voltmeter reading should be at least 35dB below reading in Step 2.
4	8% mod.	Composite to channel 1 kHz R	AC voltmeter to TAPE OUT jack of L channel	VR304	Same as Step 3.
If you could not obtain −35dB readings in Steps 3 and 4 (compared with Step 2), readjust VR304 until you obtain −35dB readings for both Steps 3 and 4. Nominal is −50 dB.					

TROUBLESHOOTING

Symptom	Cause and Remedy
Receiver inoperative (FL indicator does not light)	A) Faulty AC power cord. Replace. B) Defect in the power switch. Replace. C) Broken wire in the power transformer. Replace the power transformer. D) Blown power. Replace the fuse.
Fuse blows when power is turned on	A) Defective power transformer. Replace. B) Short in the primary or secondary of the transformer circuitry. C) Damaged rectifier D210 to D213. Replace the defective component(s). D) Short circuit in the rectifier circuit. Repair the short.
Power indicator lights but no sound from both channels	A) Speaker switch A or B defective. Replace the defective switch(es). B) Defect in transistor Q210 L/R, Q211 L/R on the Main Amp Board. Replace the defective component(s).
Speaker A inoperative	A) Speaker switch A defective. Replace.
Speaker B inoperative	A) Speaker switch B defective. Replace.
One channel does not work when VOLUME at maximum with a test signal applied to the center terminal of VOLUME control VR5 of the dead channel	A) Defect in transistor Q210 L/R, Q211 L/R of the Main Amp Board. Locate and correct the defect. B) Break in copper foil of printed circuit board. Repair the short. C) Short in speaker output terminal. Repair or replace. D) Defective resistor R601 L/R or R613 L/R. Replace the defective resistor(s). E) Defective capacitor C602 L/R or C201 L/R. Replace the defective capacitor(s).
Speaker works normally but headphones inoperative	A) Headphone plug does not mate with jack. Replace the plug. B) Defective resistor R701 L/R. Replace.

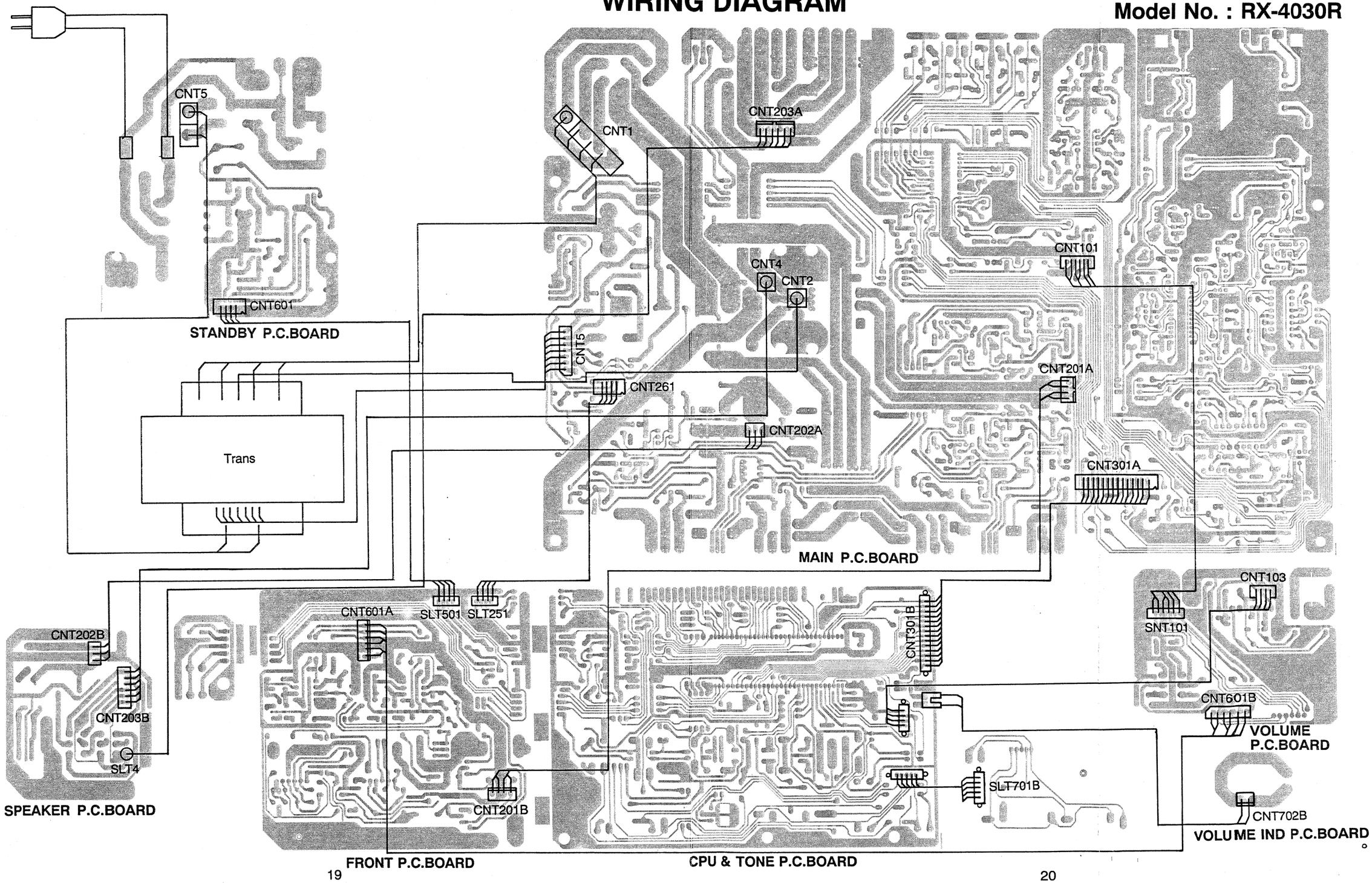
Symptom	Cause and Remedy
All the inputs work normally except CD(TV/AUX)input	A) Poor contact in CD. Repair or replace the jack. B) Defective CD switch(es), TAPE 1 switch(es), or IC202, IC203. Replace.
PHONO input inoperative	A) Poor contact in PHONO input jack. Repair or replace the jack. B) Defective PHONO switch or IC101. Replace.
TAPE OUT 1, 2 has no effect	A) Defective contact in TAPE OUT jack. Repair or replace the jack. B) Defective contact in tape monitor switch(es) (tape 1, 2). Repair or replace.
FM inoperative	A) Defective front-end. (FE407-A14) Replace the switch. B) Defective FM switch. Replace the switch. C) Defective transistor Q301, Q306 L/R, IC301, IC303. Replace the defective transistor(s) or IC(s). D) Defective coil T302 or T303. Replace the coil(s). E) Defective lead-in. Repair or replace the lead in. F) Ceramic filter CF301, CF302, or CF303 defective. Replace the defective ceramic filter(s). G) Defective controller circuit component. Replace.
Poor multiplex separation	A) Improper adjustment. Readjust VR301 and VR302. (Refer to MPX Alignment.) B) IC303 defective. Replace. C) Variable resistor VR303 or VR304 defective. Replace the variable resistor(s).
STEREO indicator does not light	A) Defective indicator in FL. Replace. B) Improper adjustment of VR303 of tuner board. Make readjustment. (Refer to MPX Alignment) C) Defective IC303 Replace the defective component.
FM volume not sufficient	A) If volume from both L and R channels is not loud enough: Front-end section defective, or faulty IC301, coil T303, or defective capacitor C338 of tuner board. Locate and replace the defective component(s). B) If sound from one channel is not loud enough, defective T306 L/R. Replace.

Symptom	Cause and Remedy
FM MUTE has no effect	A) Defective FM MONO/FM Mute off switch. Replace the switch. B) Defective IC301, D301, D302, D305, D306L/R, Q307 Replace the defective component(s).
AM inoperative	A) Damaged IC301 of tuner board. Replace. B) Defective T301, T305, T306 of tuner board. Replace the defective component(s). C) Resistor R302, R331, or R317 defective. Replace the defective component(s). D) Capacitor C304, C329, C338, or C319 defectivel. Replace the defective capacitor(s). E) Defective AM switch. Replace. F) Defective varicap diode VD301, VD302 Replace varicap diods(s). G) Damaged AM loop antenna. Repair or replace. H) Defective controller circuit component. Replace.
BASS control has no effect	A) Variable resistor BASE defective. Replace. B) Defective R706L/R, R708L/R, C705L/R, C706L/R. Replace the defective component(s).
TREBLE control has no effect	A) Variable resistor VR2 defective. Replace. B) Defective R607 L/R, R609 L/R, C605 L/R, C611 L/R. Replace the defective component(s).
LOUDNES has no effect	A) Defective loudness switch. Replace. B) Defective R618 L/R, 619 L/R, 616 L/R, 617 L/R. Replace the defective component(s).
MONO not effective	A) Defective mono switch. Replace.
TAPE not effective	A) Defective tape monitor switch. Replace. B) Poor contact in tape jack. Repair or replace jack(s). C) Defective resistor R114 L/R. Replace the defective resistor(s).
Excessive noise using PHONO input	A) Defective IC101. Replace. B) Defective C101 L/R, C102 L/R, R101 L/R, R104 L/R, C106 L/R, R107 L/R. Replace the defective component(s).

Symptom	Cause and Remedy
Auto tuning inoperative(Up/DOWN)	A) Poor contact in Up/Down key. Repair replace. B) Defective IC701 Replace. C) Defective FL. Replace. D) Defective tuner circuit component. Replace. E) In case of FM only, improper adjustment of FM front-end. Replace.
Manual tuning inoperative(UP/DOWN) (AM or FM)	A) Poor contact in Up/Down key. Replace. B) Defective IC701. Replace.
Memory setting(keys 1-10)inoperative	A) Poor contact in memory keys 1-10. Replace. B) Poor contact in memory set key. Replace. C) Defective IC701. Replace the defective component.
FL inoperative	A) FL defective. Replace. B) Defective IC701. Replace. C) Defective X701. Replace.
Noise Volume control IC603.	A) Defective IC603 Replace. B) Defective capacitor C618 or C619. Replace the defective capacitor(s).
Remote Control Unit inoperative	A) Weak Battery. Replace. B) Defective. Replace. C) Defective IC701(CPU board) or IC001. Replace.

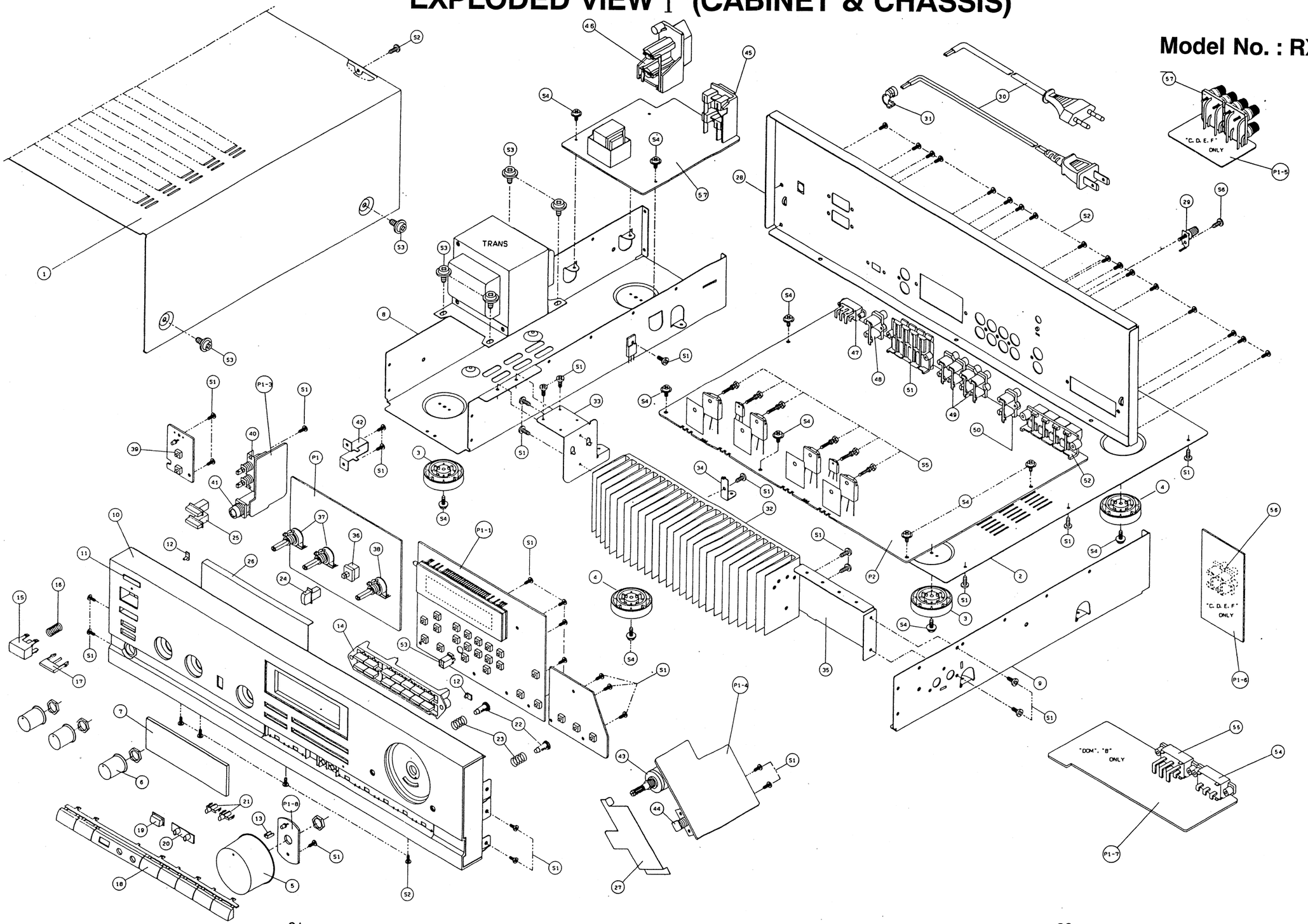
WIRING DIAGRAM

Model No. : RX-4030R



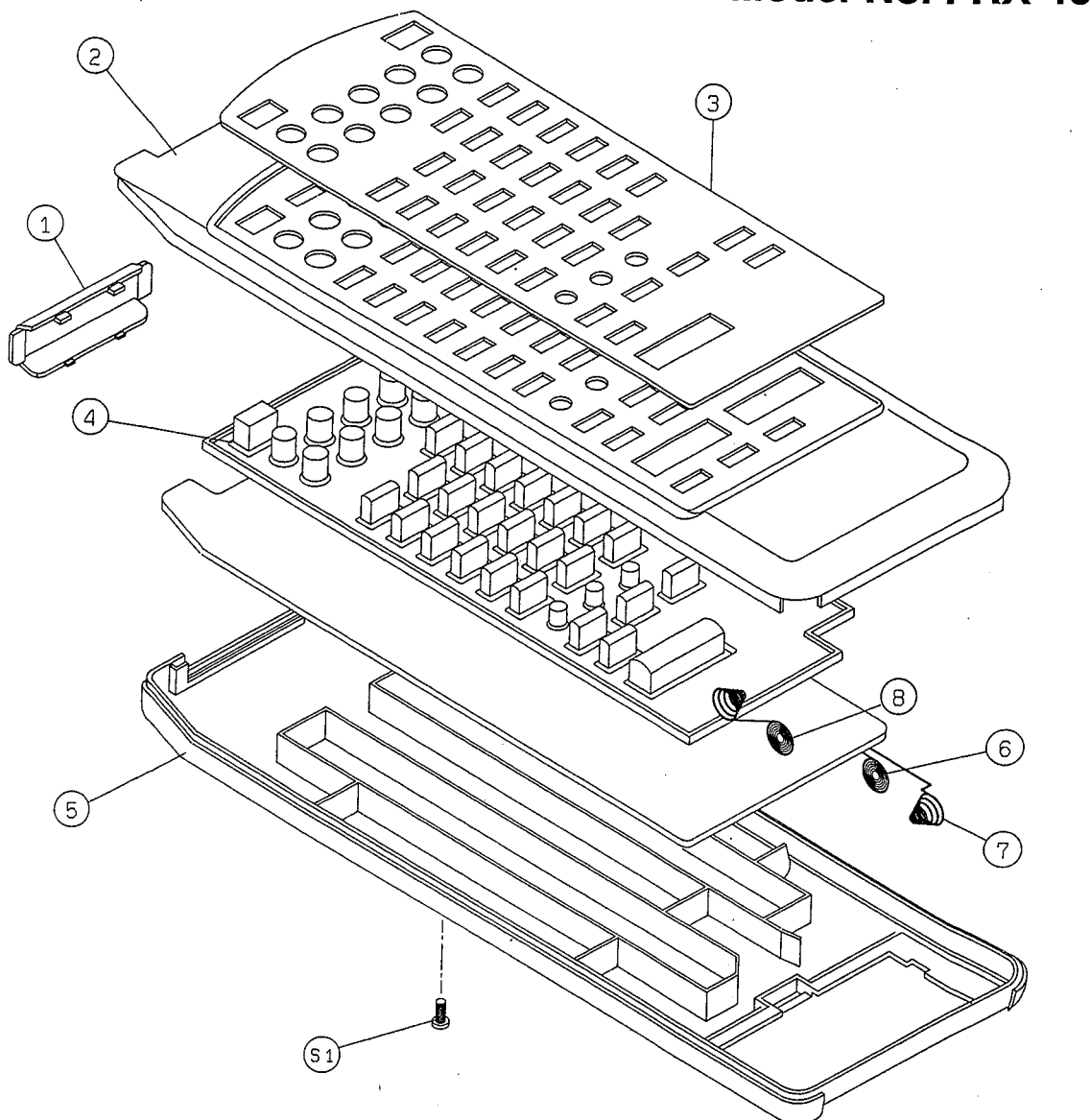
EXPLODED VIEW Ⅰ (CABINET & CHASSIS)

Model No. : RX-4030R



EXPLODED VIEW Ⅱ (REMOCON)

Model No. : RX-4030R



No	Parts No.	Description	Q'ty	Version
1	855040210	Upper Cover	1	
2	048582001112	Cover top	1	
3	048552003622	Plate Function	1	A,B,C,D,E,F
3	048552003623	Rubber Tact	1	Dom
4	048722000942	Rubber Tact	1	A,B,C,D,E,F
4	048722000942	Rubber Tact	1	DOM
5	8582001210	Cover Bottom	1	
6	6555009810	Spring Battery(-)	1	
7	6555009810	Spring Battery(+)	1	
8	6555604310	Spring Battery(B)	1	
9	8583004410	Cover Battery	1	
S1	8019120103	Screw OPM2X10B	1	

CABINET & CHASSIS PARTS LIST

Ref. No.		Parts No.	Description	Q'ty	Version
PACKAGE					
		9515000120	Film Soft PE	1	
		9722035610	Cushion Poly	1	
		049604124173	Box Carton	1	
		9705001520	Poly Bag	1	
ACCESSORIES					
		4348000320	ANT Wire Dipole	1	
		2608207361	ANT AM Loop Stand Strip Wire	1	
		058581000143	Ass'y Commander	1	
CABINET					
1		046122027811	Cover Top, SECC, Black	1	
2		6122417810	Cover Bottom, SECC, White	1	
3		046033102611	Foot (AL), ABS, Gold	2	Dom.
		046033102511	Foot (Hot Stamping), ABS, Gold	(2)	A,B,C,D,E,F
4		046033102511	Foot (Hot Stamping), ABS, Gold	2	A,B,C,D,E,F,Dom.
		6033102510	Foot (Black), ABS, Black	(2)	A
5		8543033210	Knob Volume, ABS, Black	1	
6		048545082911	Knob Tone, ABS, Black	3	
7		048553012611	Window Display, PVC, Wine	1	
8		6121607630	Frame Side (L), SECC, White	1	
9		6122633520	Frame Side (R), SECC, White	1	
10		048501019415	Panel Front (Sherwood), ABS, Black	1	A,B,C,D,E,F
		048501019416	Panel Front (Inkel), ABS, Black	(1)	Dom.
11		048535033911	Badge (Sherwood), ABS, Gold	1	A,B,C,D,E,F
		048535034011	Badge (Inkel), ABS, Gold	(1)	Dom.
12		8545082010	Indicator, ABS, Milk	2	
13		8555047310	Indicator, ABS, Milk	1	
14		8543033010	Button Preset, ABS, Black	1	
15		8545074330	Button Power, ABS, Black	1	
16		6555004380	Button Spring, PWR, White	1	
17		8545082110	Button Sleep, ABS, Black	1	
18		048543033113	Button Function,ABS, Black	1	A,B,C,D,E,F
		048543033114	Button Function, ABS, Black	(1)	Dom.
19		048555033711	Window Sensor, PVC, Wine	1	
20		048545082411	Begel AM - FM, ABS, Gold	1	
21		8545082510	Button AM - FM, ABS, Black	2	
22		8545082610	Button Mute, ABS, Black	2	
23		6555002510	Button Spring, PWR, White	2	
24		8545082310	Button Surround, ABS, Black	1	
25		8545082210	Button Speaker, ABS, Black	1	
26		6163113110	Shield Fence, Lithography, White	1	
27		6165139210	Shield Fence, Lithoraphy, White	1	
28		046102036611	Chassis Back, SECC, Black	1	Dom.
		046102036621	Chassis Back, SECC, Black	(1)	A
		046102036631	Chassis Back, SECC, Black	(1)	B
		046102036641	Chassis Back, SECC, Black	(1)	C
		046102036651	Chassis Back, SECC, Black	(1)	D
		046102036661	Chassis Back, SECC, Black	(1)	E
		046102036671	Chassis Back, SECC, Black	(1)	F
29		4408104910	Terminal Ground	1	
30	⚠	4308001610	AC Cord, Black	1	Dom.
	⚠	4308001410	AC Cord, Black	(1)	A,B
	⚠	4308000430	AC Cord, Black	(1)	C,D,F
	⚠	4308007610	AC Cord, Black	(1)	E
31		6513000310	Stopper Cord, ABS, Black	1	Dom.
		6518000710	Stopper Cord, ABS, Black	(1)	A,B
		6518000111	Stopper Cord, ABS, Black	(1)	C,D,E,F
32		7503150310	Heatsink Power, AL, White	1	
33		6505119210	Heatsink Bracket (L), SECC, White	1	
34		6505130010	Bracket PCB, SECC, White	1	
35		6503027010	Heatsink Bracket (R), SECC, White	1	
36		4628056410	Switch Push (Surround)	1	
37		3208061810	VR Bass, Treble	2	
38		3208052010	VR Balance	1	

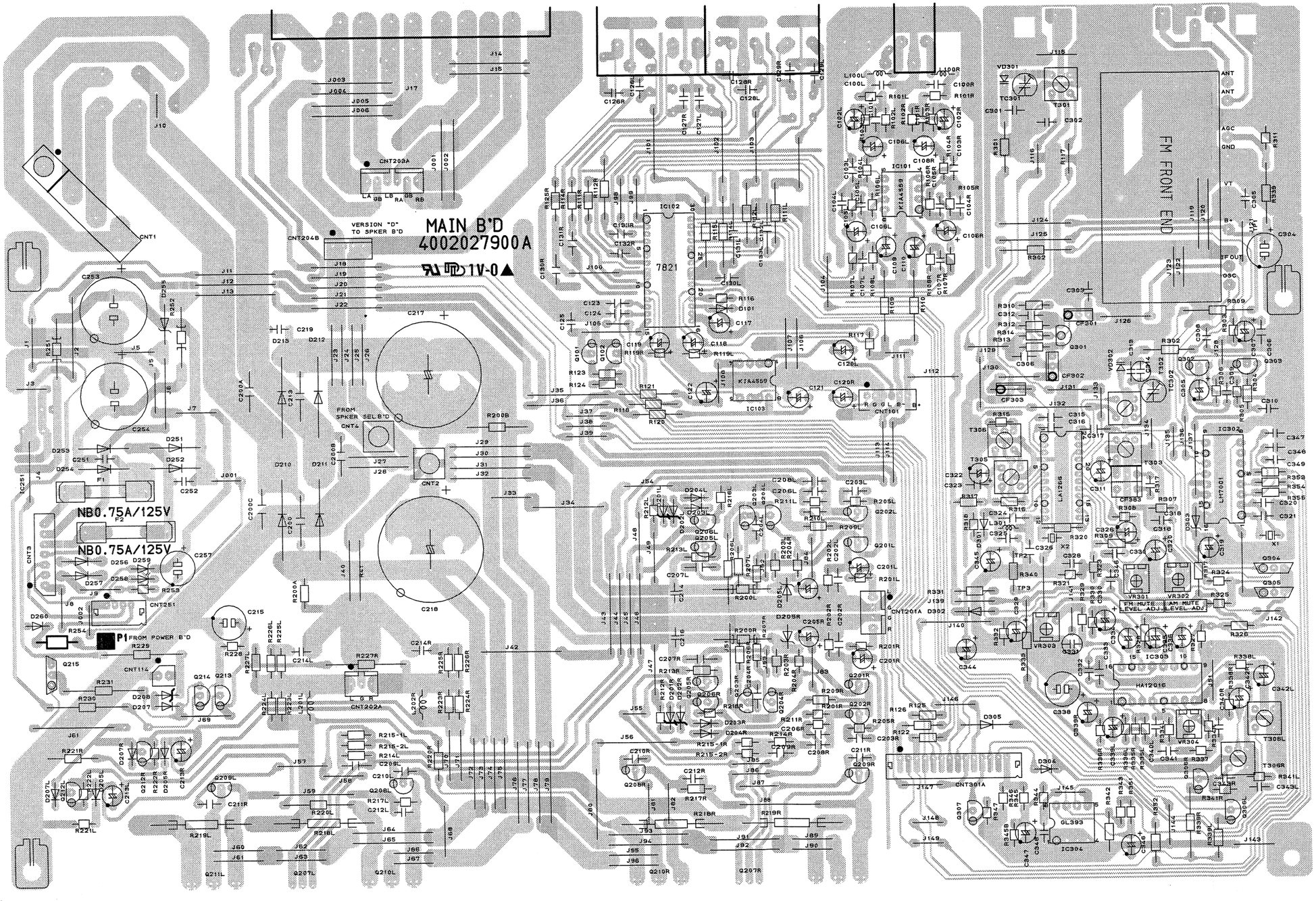
Ref. No.		Parts No.	Description	Q'ty	Version
39		4658003710	Switch Tact	26	
40		4628058410	Switch Push (Speaker)	1	
41		4438004410	Jack Phone (Black)	1	
42		6505108310	Bracket Phone Jack	1	
43		3228013810	VR Motor	1	
44		4628058310	Switch Push (Loud)	1	
45	⚠	4448103010	AC Outlet	1	A,B
46	⚠	4448103910	AC Outlet	1	Dom.
	⚠	4448103610	AC Outlet	(1)	C,D,F
47		4618006510	Slide Switch (SP IMP)	1	
48		4438105610	RCA Jack (2P)	1	
49		4438103110	RCA Jack (4P)	2	
50		4438105020	RCA Jack (2P)	1	
51		4408105510	Terminal Speaker	1	Dom.,A,B
		4408105810	Terminal Speaker	(1)	C,D,E,F
52		4408107110	Terminal ANT	1	Dom,A,B
		4408101610	Terminal ANT	(1)	C,D,E,F
53		6045010020	Holder Sensor, ABS, Black	1	
54		4618006610	Switch Voltage	1	Dom,B
55		4618006510	Switch Voltage	1	Dom,B
56		4438103410	RCA Jack	1	C,D,E,F
57		4408105810	Terminal Speaker	1	C,D,E,F
S1		8109230081	Screw #2 BTC 3x8 Y	41	
S2		8109230083	Screw #2 BTC 3x8 B	25	
S3		8159240083	Screw WSAM 4x8 B	8	
S4		8159230081	Screw #2 WPTC 3x8 Y	11	
S5		8099130121	Screw HEX MSPW 3x12Y	6	
S6		8109240061	Screw #2 BTC 4x6 Y	1	
		052438012201	Ass'y Posistor	1	
TRANS	⚠	2828000517	Power Transformer	1	A
	⚠	2828000647	Power Transformer	(1)	Dom,G
	⚠	2828000587	Power Transformer	(1)	D
	⚠	2828000657	Power Transformer	(1)	E
P1		4002028000	PCB Front	1	
P1-1		4002028010	PCB CPU & Tone	1	
P1-2		4002028020	PCB Stand-By	1	
P1-3		4002028030	PCB Speaker Selector	1	
P1-4		4002028040	PCB Volnume	1	
P1-5		4002028050	PCB Power Selector	1	
P1-6		4002028060	PCB Speaker	1	
P1-7		4002028070	PCB Pre Out	1	
P1-8		4002028080	PCB Volnume Indicator	1	
P2		4002027900	PCB Main	1	

PRODUCT SAFETY NOTICE

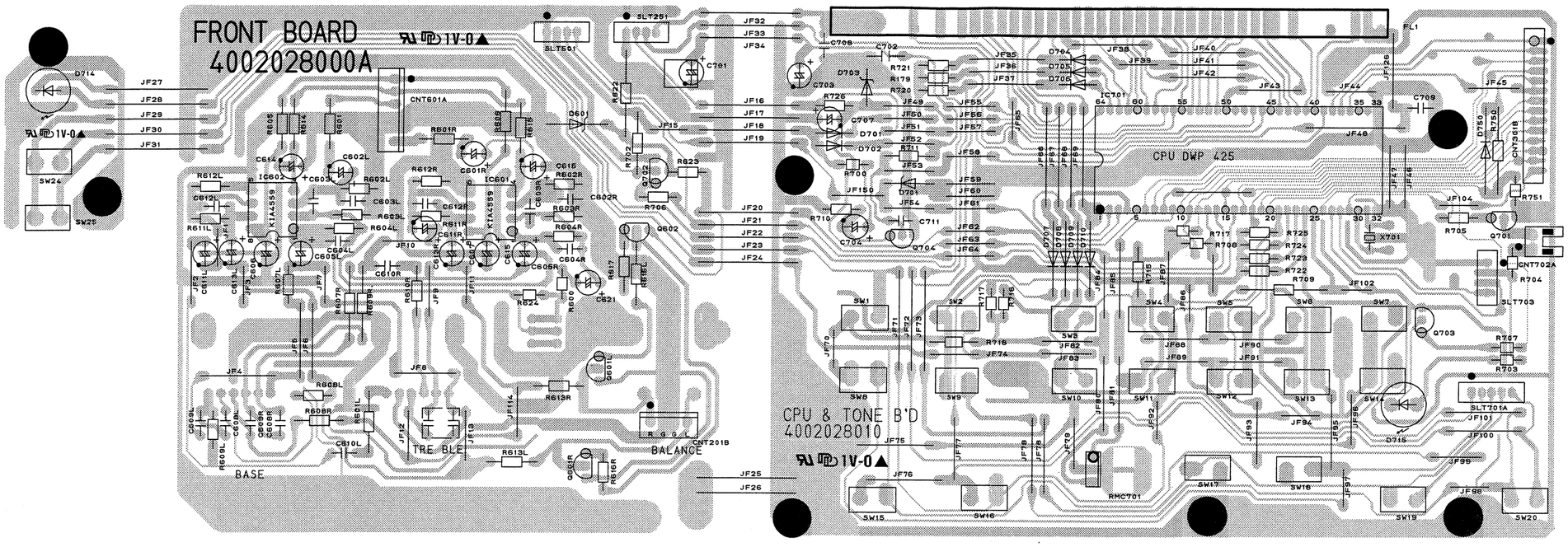
Each precaution in this manual should be follower during servicing. Components identified with the IEC symbol ⚠ in the parts list and the safety can be of special significance. When replacing a component identified with ⚠ , use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

P.C. BOARDS(BOTTOM VIEWS)

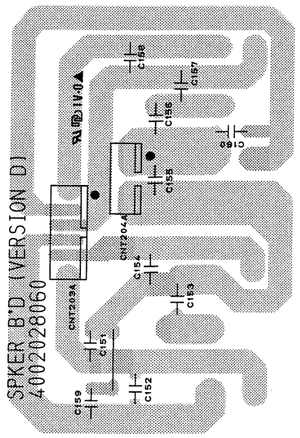
MAIN P.C.BOARD



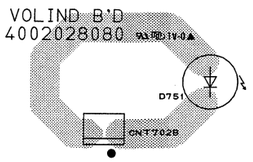
FRONT P.C.BOARD



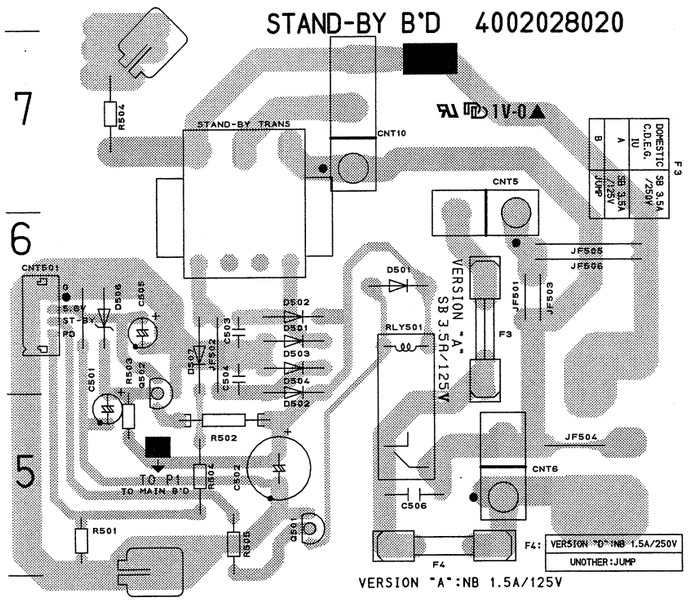
SPKER P.C.BOARD



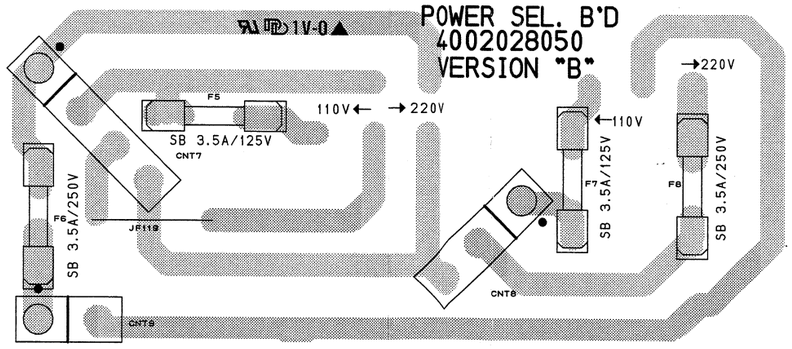
VOLIND P.C.BOARD



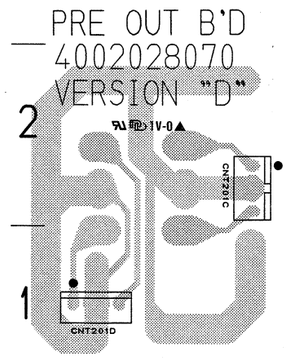
STAND-BY P.C.BOARD



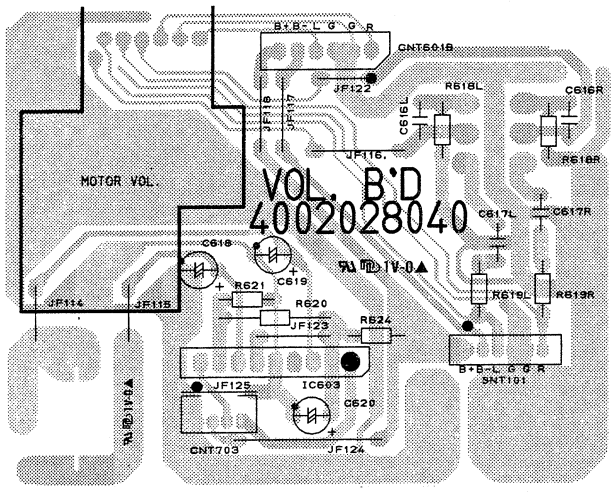
POWER SEL.P.BOARD

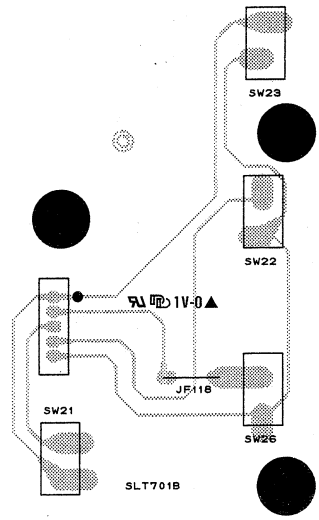


PRE OUT P.C.BOARD



VOL. P.C.BOARD


B+B-L G G R
CNT601B
JF122
R618L
C616R
C616L
JF118
JF117
JF116
R618R
MOTOR VOL.
VOL. B'D
4002028040
C617L
C617R
C618
C619
1V-0▲
R621
R620
R619L
R619R
JF114
JF115
JF123
R624
B+B-L G G R
SNT101
JF125
IC603
C620
CNT703
JF124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SW22
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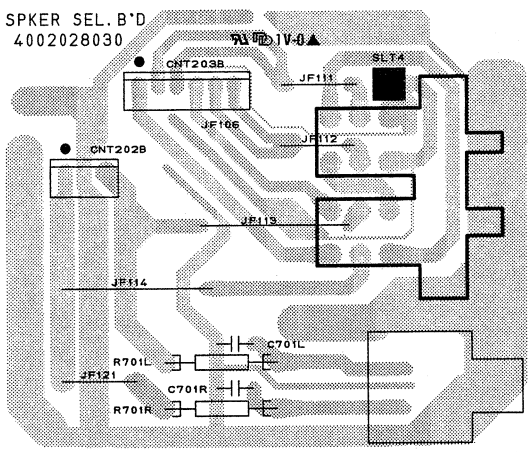
JF116
SW21
SW26
SLT701B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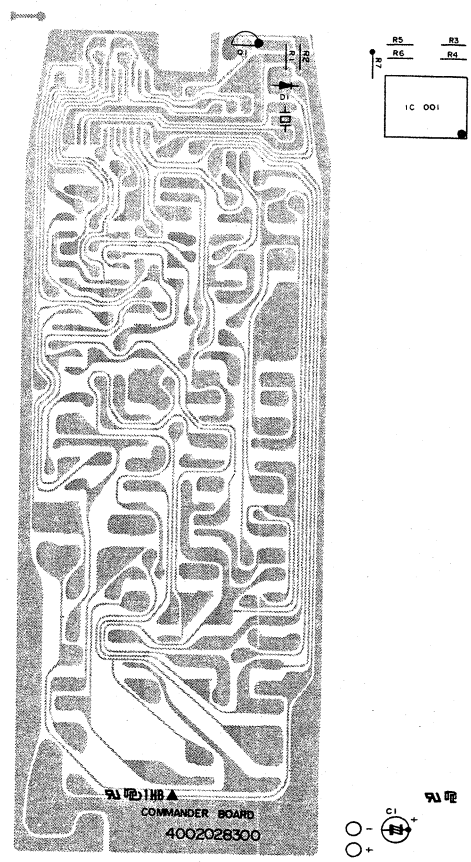
4002028030
1V-0▲
CNT203B
SLT4
JF111
JF106
JF112
CNT202B
JF113
JF114
C701L
R701L
JF121
C701R
R701R


Q1
D1
R5
R3
R6
R4
IC 001
1HB▲
COMMANDER BOARD
4002028300
C1

P.C.BOARD PARTS LIST

Ref. No.	Parts No.	Description				Q'ty	Version
ASS'Y P.C.B MAIN							
P2	**054010110014**	**Ass'y P.C.B Main**				1	A, Dom
	054010310015	**Ass'y P.C.B Main**					C, G
	054010410016	**Ass'y P.C.B Main**					D, E, F
	4855000110	Pipe Ceramic 12mm				8	
	4255001010	Clip Fuse				8	
47	4618006510	Slide Switch (SP IMP)				1	
48	4438105610	RCA Jack (2P)				1	
49	4438103110	RCA Jack (4P)				2	
50	4438105020	RCA Jack (2P)				1	
51	4408105510	Terminal Speaker				1	Dom.,A,B
(51)	4408105810	Terminal Speaker					C,D,E,F
52	4408107110	Terminal ANT				1	Dom, A, B
(52)	4408101610	Terminal ANT					C,D,E,F
C101L/R	3519101935	Ceramic Tubular	100 pF	50V	J	2	
C102L/R	3479210071	Electric SA	10 uF	50V	M	2	
C103L/R	3519222935	Ceramic Tubular	2200 pF	50V	J	2	
C104L/R	3679182120	Mylar	0.0018 uF	100V	J	2	
C105L/R	3679562120	Mylar	0.0056 uF	100V	J	2	
C106L/R	3479268871	Electric SA	0.68 uF	50V	M	2	
C107R	3679152120	Mylar	0.0015 uF	100V	J	1	
C108R	3479310121	Electric SG	100 uF	10V	M	1	
C109/110	3479347041	Electric SG	47 uF	25V	M	2	
C117	3479210971	Electric SA	1 uF	50V	M	1	
C118/119	3479210071	Electric SA	10 uF	50V	M	2	
C120R	3479247971	Electric SA	4.7 uF	50V	M	1	
C121/122	3479347041	Electric SG	47 uF	25V	M	2	
C126L/R	3519101935	Ceramic Tubular	100 pF	50V	J	2	C,D,E,F
C127L/R	3519101935	Ceramic Tubular	100 pF	50V	J	2	C,D,E,F
C128L/R	3519101935	Ceramic Tubular	100 pF	50V	J	2	C,D,E,F
C129L/R	3519101935	Ceramic Tubular	100 pF	50V	J	2	C,D,E,F
C130L/R	3519101935	Ceramic Tubular	100 pF	50V	J	2	C,D,E,F
C131L/R	3519101935	Ceramic Tubular	100 pF	50V	J	2	C,D,E,F
C132L/R	3519101935	Ceramic Tubular	100 pF	50V	J	2	C,D,E,F
C133L/R	3519101935	Ceramic Tubular	100 pF	50V	J	2	C,D,E,F
C200	3579104257	Ceramic Disc	0.01 uF	250V	J	1	C,D,E,F
C200A	3579104257	Ceramic Disc	0.01 uF	250V	J	1	C,D,E,F
C200B	3579104257	Ceramic Disc	0.01 uF	250V	J	1	C,D,E,F
C201L/R	3479233971	Electric SA	3.3 uF	50V	M	2	
C202L/R	3519331935	Ceramic Tubular	330 pF	50V	J	2	
C203L/R	3519471935	Ceramic Tubular	470 pF	50V	J	2	
C204L/R	3519270935	Ceramic Tubular	27 pF	50V	J	2	
C205L/R	3479310121	Electric SG	100 uF	10V	M	2	
C206L/R	3519033935	Ceramic Tubular	3.3 pF	50V	J	2	
C207L/R	3519200935	Ceramic Tubular	20 pF	50V	J	2	
C208L/R	3519100935	Ceramic Tubular	10 pF	50V	J	2	
C209L/R	3519102935	Ceramic Tubular	1000 pF	50V	J	2	
C210L/R	3519221935	Ceramic Tubular	220 pF	50V	J	2	
C211L/R	3519221935	Ceramic Tubular	220 pF	50V	J	2	
C212L/R	3679473120	Mylar	0.047 uF	100V	J	2	
C213L/R	3479247971	Electric SA	4.7 uF	50V	M	2	
C215	3479347121	Electric SG	470 uF	10V	M	1	
C217/218	3419568235	Electric HM	6800 uF	63V	M	2	
C219/220	3579104257	Ceramic Disc	0.01 uF	250V	J	2	
C251/252	3679103120	Mylar	0.01 uF	100V	J	2	
C253	3409310269	Electric SG	1000 uF	35V	M	1	
C254	3409310279	Electric SG	1000 uF	50V	M	1	
C257	3409310179	Electric SG	100 uF	50V	M	1	
C258	3679473120	Mylar	0.047 uF	100V	J	1	
C301/302	3579473530	Ceramic Disc	0.047 uF	50V	J	2	
C304	3479310131	Electric SG	100 uF	16V	M	1	
C305	3479210871	Electric SA	0.1 uF	50V	M	1	
C306	3519223935	Ceramic Tubular	0.022 uF	50V	J	1	
C307	3479347041	Electric SG	47 uF	25V	M	1	
C308	3519033935	Ceramic Tubular	3.3 pF	50V	J	1	
C309	3579223530	Ceramic Disc	0.022 uF	50V	J	1	
C310	3519103935	Ceramic Tubular	0.01 uF	50V	J	1	
C311	3479247971	Electric SA	4.7 uF	50V	M	1	
C312	3519223935	Ceramic Tubular	0.022 uF	50V	J	1	
C314	3619471110	Poly	470 pF	50V	J	1	
C315/316	3579473530	Ceramic Disc	0.047 uF	50V	J	2	
C317	3509103450	Ceramic Disc	0.01 uF	400V	J	1	
C318	3579223530	Ceramic Disc	0.022 uF	50V	J	1	
C319	3479347041	Electric SG	47 uF	25V	M	1	
C320/321	3529270210	Ceramic Tubular	27 pF	50V	J	2	
C322	3479222071	Electric SA	22 uF	50V	M	1	
C323	3519103935	Ceramic Tubular	0.01 uF	50V	J	1	
C324	Jumper					A	
(C324)	3519680935	Ceramic Tubular	68 pF	50V	J		C,D,E,F
C325	3519151935	Ceramic Tubular	150 pF	50V	J	1	C,D,E,F

Ref. No.	Parts No.	Description				Q'ty	Version
C326	3479233971	Electric SA	3.3 uF	50V	M	1	
C327	3679223120	Mylar	0.022 uF	100V	J	1	
C328	3679332120	Mylar	0.0033 uF	100V	J	1	
C329	3479247971	Electric SA	4.7 uF	50V	M	1	
C330	3679563120	Mylar	0.056 uF	100V	J	1	
C331	3619102110	Poly	1000 pF	50V	J	1	
C332	3679473120	Mylar	0.047 uF	100V	J	1	
C333	3519681935	Ceramic Tubular	680 pF	50V	J	1	
C334/335	3479210971	Electric SA	1 uF	50V	M	2	
C336	3479233971	Electric SA	3.3 uF	50V	M	1	
C338	3579221130	Ceramic Disc	220 pF	50V	J	1	
C339L	3479222071	Electric SA	22 uF	50V	M	1	
C340L/R	3679152120	Mylar	0.0015 uF	100V	J	2	
C341	3579221130	Ceramic Disc	220 pF	50V	J	1	
C343R	3679332120	Mylar	0.0033 uF	100V	J	1	
C344	3479233971	Electric SA	3.3 uF	50V	M	1	
C345	3479210971	Electric SA	1 uF	50V	M	1	
C346	3479210071	Electric SA	10 uF	50V	M	1	
C347	3479210871	Electric SA	0.1 uF	50V	M	1	
C348	3679683120	Mylar	0.068 uF	100V	J	1	
CF301	3908011001	CF 10.7MHz MA8-A				1	A
(CF301)	3908011001	CF 10.7MHz MS3GH					C,D,E,G
CF302	3908011001	CF 10.7MHz MA8-A				1	A
(CF302)	3908011001	CF 10.7MHz MS3GH					C,D,E,F
CF383	3908001390	A450B,AM IF Filter				1	
CNT1	4428525800	Wafer, AC 4P				1	
CNT2	4428525860	Wafer, AC 1P				1	
CNT3	4428505410	Wafer 7P				1	
CNT4	4428525860	Wafer, AC 1P				1	
CNT101	4428516510	Wafer 6P				1	
CNT114	4428516110	Wafer 2P				1	
CNT201A	4428517710	Wafer 4P				1	
CNT202A	4428517610	Wafer 3P				1	
CNT203A	4428517910	Wafer 6P				1	A
CNT204B	436204163121	Flat Cable 160 mm				1	C,D,E,F
CNT251A	4428525540	Wafer 4P				1	
CNT301A	4428525640	Wafer 14P				1	
L100L/R	2648601470	Coil 50uH				2	C,D,E,F
L201L/R	2648001010	Inductor 0.5UH				2	
L301	2648601430	Coil 20.8mH				1	C,D,E,F
T301	2608201120	AM ANT				1	
T302	2638201150	AM OSC, Can Type				1	
T303	2848001250	AM IFT, Can Type				1	
T305	2838501210	Quad DET (B) FM, Can Type				1	
T306	2838501110	Quad DET (A) FM, Can Type				1	
D101	2058306101	1N4148, Switching				1	
D201L/R	2258599115	Zener UZ 27.0BSC				2	
D202L/R	2258599115	Zener UZ 27.0BSC				2	
D203L/R	2058306101	1N4148, Switching				2	
D204L/R	2058306101	1N4148, Switching				2	
D205L/R	2258599115	Zener UZ 27.0BSC				2	
D206L/R	2058306101	1N4148, Switching				2	
D207L/R	2058306101	1N4148, Switching				2	
D208	2258599107	Zener UZ 9.1BSC				1	
D209	2058306101	1N4148, Switching				1	
⚠ D210-213	2058100136	1N5402, Rectifier				4	
⚠ D251-254	2258100135	1N4002, Rectifier				4	
⚠ D255	2258599109	Zener UZ 15.0BSC				1	
D256/257	2258100135	1N4002, Rectifier				2	
D258	2258599103	Zener UZ 5.1BSB				1	
D259	2258599119	Zener UZ 22.0BSC				1	
D301/302	2058306101	1N4148, Switching				2	
D303	2258599103	Zener UZ 5.1BSB				1	
D304/305	2058306101	1N4148, Switching				2	
VD301/302	2058819106	KV1236Z				2	
FE301	⚠ 3928801930	FM Tuner FE306-A15				1	A
(FE301)	⚠ 3928801970	FM Tuner FE407-A15					C,D,E,F
F1/F2	⚠ 5508201821	Fuse NB 750mA 125V 20mm				2	
IC101	2168206104	KIA75559P(KIA4559P), OP Amplifier				1	
IC102	2168017132	LC7821, Function Switching				1	
IC103	2168206104	KIA75559P(KIA4559P), OP Amplifier				1	
IC251	⚠ 2168601105	GD7815, Regulator				1	
IC301	2168017128	LA1266, IF				1	
IC302	2138017112	LM7001, PLL				1	
IC303	2168411105	HA12016, MPX				1	
IC304	2168801100	GL393GS				1	
Q201L/R	2208606108	KTC2240BL(BKTC3200BL)				2	
Q202L/R	2208606108	KTC2240BL(BKTC3200BL)				2	
Q203L/R	2208606108	KTC2240BL(BKTC3200BL)				2	
Q204L/R	2208606108	KTC2240BL(BKTC3200BL)				2	

Ref. No.	Parts No.	Description				Q'ty	Version
Q205L/R	2208206102	BKT949, Current Source				2	
Q206L/R	2208606107	KTC2229, Voltage Driver				2	
Q207L/R	2008622110	C4137, Currunt source				2	
Q208L/R	2228406120	BKTC2235, Voltage Driver				2	
Q209L/R	2208106107	KTA965, Voltage Driver				2	
Q210L/R	2028416107	2SC3854, Power Transistor				2	
Q211L/R	2028116104	2SA1490, Power Transistor				2	
Q212L/R	2208606104	KTC1815Y(BKTC3198Y), Switching				2	
Q213/214	2208606104	KTC1815Y(BKTC3198Y), Switching				2	
Q215	2208622105	DTA114Y, Switching				1	
Q301	2008409101	LM9018F, IF AMP				1	
Q302	2218211100	FET 2SK168D, Low Pass Filter				1	
Q303	2208606108	KTC2240BL(BKTC3200BL)				1	
Q304/305	2208622105	DTA114Y, Switching				2	
Q306L/R	2208606112	KTD1302S,Mute				2	
Q307	2208206105	KTA1015Y(BKTA1266Y), Switching				1	
R101L/R	3069102970	Carbon Film	1k	1/5W	J	2	
R102L/R	3069104970	Carbon Film	100k	1/5W	J	2	
R103L/R	3069104970	Carbon Film	100k	1/5W	J	2	
R104L/R	3069911970	Carbon Film	910	1/5W	J	2	
R105L/R	3069564970	Carbon Film	560k	1/5W	J	2	
R106L/R	3069433970	Carbon Film	43k	1/5W	J	2	
R107L/R	3069471970	Carbon Film	470	1/5W	J	2	
R108L/R	3069104970	Carbon Film	100k	1/5W	J	2	
R109/110	3069471970	Carbon Film	470	1/5W	J	2	
R111L/R	3069102970	Carbon Film	1k	1/5W	J	2	
R112L/R	3069102970	Carbon Film	1k	1/5W	J	2	
R113L/R	3069102970	Carbon Film	1k	1/5W	J	2	
R114L/R	3069102970	Carbon Film	1k	1/5W	J	2	
R115	3069561970	Carbon Film	560	1/5W	J	1	
R116	3069104970	Carbon Film	100k	1/5W	J	1	
R117	3069561970	Carbon Film	560	1/5W	J	1	
R119L/R	3069473970	Carbon Film	47k	1/5W	J	1	
R120/121	3069470970	Carbon Film	47	1/5W	J	2	
R200A	3029272572	Metal Film	2.7K	2W	K	1	
R200B	3069153970	Carbon Film	15k	1/5W	J	1	
R200L/R	3029152472	Metal Film	1.5k	1W	K	2	
R201L/R	3069102970	Carbon Film	1k	1/5W	J	2	
R202L/R	3069333970	Carbon Film	33k	1/5W	J	2	
R203L/R	3069103970	Carbon Film	10k	1/5W	J	2	
R204L/R	3069103970	Carbon Film	10k	1/5W	J	2	
R205L/R	3069681970	Carbon Film	680	1/5W	J	2	
R206L/R	3069432970	Carbon Film	4.3k	1/5W	J	2	
R207L/R	3069432970	Carbon Film	4.3k	1/5W	J	2	
R208L/R	3069433970	Carbon Film	43k	1/5W	J	2	
R209L/R	3069124970	Carbon Film	120k	1/5W	J	2	
R210L/R	3069152970	Carbon Film	1.5k	1/5W	J	2	
R211L/R	3069333970	Carbon Film	33k	1/5W	J	2	
R212L/R	3069123970	Carbon Film	12k	1/5W	J	2	
R213L/R	3069121970	Carbon Film	120	1/5W	J	2	
R214L/R	3069272970	Carbon Film	2.7k	1/5W	J	2	
R215-1L/R	3069222970	Carbon Film	2.2k	1/5W	J	2	
R215-2L/R	3069202970	Carbon Film	2k	1/5W	J	2	
R216L/R	3069121970	Carbon Film	120	1/5W	J	2	
R217L/R	3069331970	Carbon Film	330	1/5W	J	2	
R218L/R	3059278682	Cenment	0.27	3W	J	2	
R219L/R	3059278682	Cenment	0.27	3W	J	2	
R220L/R	3069222970	Carbon Film	2.2k	1/5W	J	2	
R221L/R	3069153970	Carbon Film	15k	1/5W	J	2	
R222L/R	3069222970	Carbon Film	2.2k	1/5W	J	2	
R223L/R	3069100970	Carbon Film	10	1/5W	J	2	
R224L/R	3069100970	Carbon Film	10	1/5W	J	2	
R225L/R	3069222970	Carbon Film	2.2k	1/5W	J	2	
R226L/R	3069222970	Carbon Film	2.2k	1/5W	J	2	
R227L/R	3069123970	Carbon Film	12k	1/5W	J	2	
R228	3069152970	Carbon Film	1.5k	1/5W	J	1	
R229	3069132970	Carbon Film	1.3k	1/5W	J	1	
R230	3069223970	Carbon Film	22k	1/5W	J	1	
R231	3069102970	Carbon Film	1k	1/5W	J	1	
R251	3029470472	Metal Film	47	1W	K	1	
R252	3029681472	Metal Film	680	1W	K	1	
R253	3069221970	Carbon Film	220	1/5W	J	1	
R301	3069101970	Carbon Film	100	1/5W	J	1	
R302	3069104970	Carbon Film	100k	1/5W	J	1	
R303	3069103970	Carbon Film	10k	1/5W	J	1	
R304	3069821970	Carbon Film	820	1/5W	J	1	
R305	3069101970	Carbon Film	100	1/5W	J	1	
R306	3069152970	Carbon Film	1.5k	1/5W	J	1	
R307	3069683970	Carbon Film	68k	1/5W	J	1	
R308	3069103970	Carbon Film	10k	1/5W	J	1	

Ref. No.	Parts No.	Description				Q'ty	Version
R309	3069101970	Carbon Film	100	1/5W	J	1	
R310	3069561970	Carbon Film	560	1/5W	J	1	
R311		Jumper					A
(R311)	3069104970	Carbon Film	100k	1/5W	J		C,D,E,F
R312	3069331970	Carbon Film	330	1/5W	J	1	
R313	3069331970	Carbon Film	330	1/5W	J	1	
R314/315	3069332970	Carbon Film	3.3k	1/5W	J	2	
R316	3069103970	Carbon Film	10k	1/5W	J	1	
R317	3069391970	Carbon Film	390	1/5W	J	1	
R318/319	3069104970	Carbon Film	100k	1/5W	J	1	
R320	3069820970	Carbon Film	82	1/5W	J	1	
R321	3069272970	Carbon Film	2.7k	1/5W	J	1	A
(R321)	3069182970	Carbon Film	1.8k	1/5W	J		C,D,E,F
R322	3069820970	Carbon Film	82	1/5W	J	1	
R323	3069222970	Carbon Film	2.2k	1/5W	J	1	A
(R323)	3069332970	Carbon Film	3.3k	1/5W	J		C,D,E,F
R324	3069472970	Carbon Film	4.7k	1/5W	J	1	
R325	3069104970	Carbon Film	100k	1/5W	J	1	
R326	3069223970	Carbon Film	22k	1/5W	J	1	
R327	3069103970	Carbon Film	10k	1/5W	J	1	
R328/329	3069104970	Carbon Film	100k	1/5W	J	2	
R330	3069562970	Carbon Film	5.6k	1/5W	J	1	
R331	3069103970	Carbon Film	10k	1/5W	J	1	
R332	3069472970	Carbon Film	4.7k	1/5W	J	1	
R333	3069470970	Carbon Film	47	1/5W	J	1	
R334L/R	3069473970	Carbon Film	47k	1/5W	J	2	
R335L/R	3069223970	Carbon Film	22k	1/5W	J	2	
R336L/R	3069332970	Carbon Film	3.3k	1/5W	J	2	A
(R336L/R)	3069202970	Carbon Film	2k	1/5W	J		C,D,E,F
R337	3069392970	Carbon Film	3.9k	1/5W	J	1	
R338L/R	3069332970	Carbon Film	3.3k	1/5W	J	2	A
(R338L/R)	3069242970	Carbon Film	2.4k	1/5W	J		C,D,E,F
R339	3069104970	Carbon Film	100k	1/5W	J	1	C,D,E,F
R340	3069183970	Carbon Film	18k	1/5W	J	1	A
(R340)	3069473970	Carbon Film	47k	1/5W	J		C,D,E,F
R341L/R	3069332970	Carbon Film	3.3k	1/5W	J	2	
R342	3069103970	Carbon Film	10k	1/5W	J	1	
R343	3069223970	Carbon Film	22k	1/5W	J	1	
R344	3069622970	Carbon Film	6.2k	1/5W	J	1	
R345	3069822970	Carbon Film	8.2k	1/5W	J	1	
R346	3069822970	Carbon Film	8.2k	1/5W	J	1	
R347	3069332970	Carbon Film	3.3k	1/5W	J	1	
R351	3069470970	Carbon Film	47	1/5W	J	1	
R352	3069100970	Carbon Film	10	1/5W	J	1	
VR301/302	3248050343	50k(B)				2	
VR303	3248050243	5k(B)				1	
VR304	3248020443	200k(B)				1	
TC301	3838001000	10P,TZ03R220F				1	
TC302	3838001010	20P,TZ03R220F				1	
X1	3908101030	X-TAL 7.2MHz				1	
X2	3908001020	BFU450C4N,AM IF				1	
P1	**054010110017**	**Ass'y P.C.B Front**					A
	054010310020	**Ass'y P.C.B Front**					C,G
	054010810018	**Ass'y P.C.B Front**					Dom
	054010410019	**Ass'y P.C.B Front**					D, E, F
36	4628056410	Switch Push (Surround)				1	
37	3208061810	VR Bass, Treble				1	
38	3208052010	VR Balance				1	
C601L/R	3479247971	Electric SA	4.7 uF	50V	M	2	
C602L/R	3579820130	Ceramic Disc	82 pF	50V	J	2	
C603L/R	3579221130	Ceramic Disc	220 pF	50V	J	2	
C604L/R	3579820130	Ceramic Disc	82 pF	50V	J	2	
C605L/R	3479247971	Electric SA	4.7 uF	50V	M	2	
C606/607	3479347041	Electric SG	47 uF	25V	M	2	
C608L/R	3679223120	Mylar	0.022 uF	100V	J	2	
C609L/R	3679223120	Mylar	0.022 uF	100V	J	2	
C610L/R	3519561935	Ceramic Tubular	560 pF	50V	J	2	
C611L/R	3479247971	Electric SA	4.7 uF	50V	M	2	
C612L/R	3519470935	Ceramic Tubular	47 pF	50V	J	2	
C613L/R	3479247971	Electric SA	4.7 uF	50V	M	2	
C614L/R	3479347041	Electric SG	47 uF	25V	M	2	
C615	3479347041	Electric SG	47 uF	25V	M	1	
C621	3479247971	Electric SA	4.7 uF	50V	M	1	
(CNT201B)	43620460833	Leadd Ass'y 600mm 4P				1	
CNT201B	43620442833	Leadd Ass'y 420mm 4P				1	
SLT251	43640424073	Lead Ass'y 240mm 4P				1	
SLT501	43640426073	Lead Ass'y 260mm 4P				1	
CNT601A	43610636893	Lead Ass'y 360mm 6P				1	
D601	2258599102	Zener UZ 4.3BSB				2	

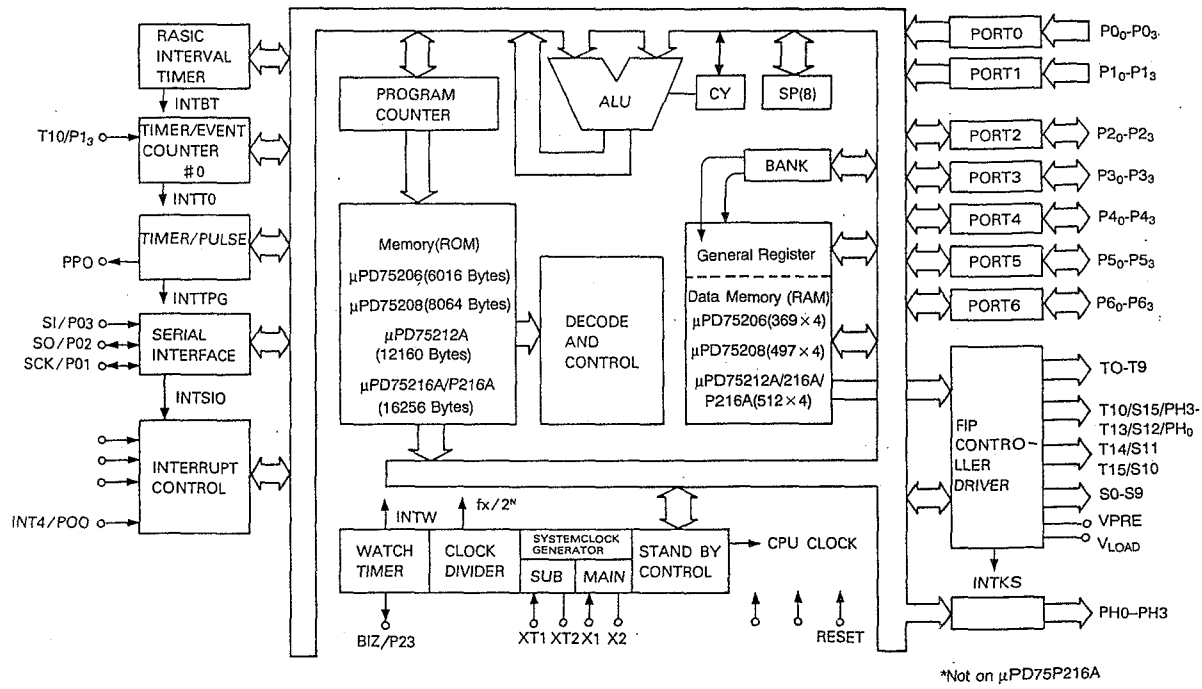
Ref. No.	Parts No.	Description				Q'ty	Version
IC601/602	2168206104	KIA75559P(KIA4559P), OP Amplifier				2	
Q601L/R	2208606112	KTD1302S,Mute				2	
Q602	2208206105	KTA1015Y(BKTA1266Y), Switching				1	
R601L/R	3069102970	Carbon Film	1k	1/5W	J	2	
R602L/R	3069104970	Carbon Film	100k	1/5W	J	2	
R603L/R	3069820970	Carbon Film	82	1/5W	J	2	
R604L/R	3069561970	Carbon Film	560	1/5W	J	2	
R605/606	3069470970	Carbon Film	47	1/5W	J	2	
R607L/R	3069203970	Carbon Film	20k	1/5W	J	2	
R608L/R	3069203970	Carbon Film	20k	1/5W	J	2	
R609L/R	3069333970	Carbon Film	33k	1/5W	J	2	
R610L/R	3069103970	Carbon Film	10k	1/5W	J	2	
R611L/R	3069224970	Carbon Film	220k	1/5W	J	2	
R612L/R	3069225970	Carbon Film	2.2M	1/5W	J	2	
R613L/R	3069223970	Carbon Film	22k	1/5W	J	2	
R614/615	3069470970	Carbon Film	47	1/5W	J	2	
R616L/R	3069102970	Carbon Film	1k	1/5W	J	2	
R617	3069332970	Carbon Film	3.3k	1/5W	J	1	
R622	3069822970	Carbon Film	8.2k	1/5W	J	1	
R623	3069102970	Carbon Film	1k	1/5W	J	1	
P1-1	**054010110030**	**Ass'y CPU & Tone Board**					A
(P1-1)	**054010310031**	**Ass'y CPU & Tone Board**					C,G
(P1-1)	**054010410032**	**Ass'y CPU & Tone Board**					D, E, F
39	4658003710	Switch Tact				26	
53	6045010020	Holder Sensor, ABS, Black				1	
C701	3439147312	Back UP AC206G473Z5R5 (0.047F)				1	
C702	3519103935	Ceramic Tubular	0.01 uF	50V	J	1	
C703	3479210071	Electric SA	10 uF	50V	M	1	
C704	3479247971	Electric SA	47 uF	50V	M	1	
C708/709	3579103530	Ceramic Disc	0.01 uF	50V	J	2	
C711	3619561110	Mylar	0.1 uF	63V	J	1	
CNT301B	436414220732	Lead Ass'y 220mm 14P				1	
SLT701A/B	436405163232	Lead Ass'y 160mm 5P				2	
CNT702A	4428525520	Wafer 2P				1	
SLT703	436204163332	Lead Ass'y 160mm 4P				1	
D700	2058306101	1N4148, Switching				1	
D701	2258599102	Zener UZ 4.3BSB				1	
D702	2058306101	1N4148, Switching				1	
D703	2258599107	Zener UZ 9.1BSC				1	
D704-710	2058306101	1N4148, Switching				7	
D714/715	2371124701	SLR34URC, LED Red				2	
D750	2058306101	1N4148, Switching				1	
IC701	2138313202	DWP 425 (UPD75212) CPU				1	
RMC701	2408004005	IR Sensor RPM638CBL				1	
Q701-704	2208606104	KTC1815Y(BKTC3198Y), Switching				4	
R700	3069102970	Carbon Film	1k	1/5W	J	1	
R702	3069471970	Carbon Film	470	1/5W	J	1	
R703/704	3069122970	Carbon Film	1.2k	1/5W	J	2	
R705/707	3069332970	Carbon Film	3.3k	1/5W	J	3	
R708/709	3069104970	Carbon Film	100k	1/5W	J	2	
R710	3069102970	Carbon Film	1k	1/5W	J	1	
R711	3069104970	Carbon Film	100k	1/5W	J	1	
R715-721	3069104970	Carbon Film	100k	1/5W	J	7	
R722-725	3069472970	Carbon Film	4.7k	1/5W	J	4	
R726	3069682970	Carbon Film	6.8k	1/5W	J	1	
R750	3069223970	Carbon Film	22k	1/5W	J	1	
R751	3069224970	Carbon Film	220k	1/5W	J	1	
X701	3938101880	CSA 4.19CMG				1	
							A
P1-2	**054010110023**	**Ass'y P.C.B Stand-By**					C
	054010310026	**Ass'y P.C.B Stand-By**					E
	054010410025	**Ass'y P.C.B Stand-By**					D, F
	054010810024	**Ass'y P.C.B Stand-By**					G, Dom
	2828096001	Stand-By Transformer				1	A
	2828090901	Stand-By Transformer					C,D,E,F,G,Dom
45	4448103010	AC Outlet				1	A ,B
46	4448103910	AC Outlet				1	Do.m.
(46)	4448103610	AC Outlet					C,D,F
C501	3479222071	Electric SA	22 uF	50V	M	1	
C502	3409333169	Electric SG	330 uF	35V	M	1	
C503/504	3679473120	Mylar	0.047 uF	100V	J	2	
C505	3549472407	Ceramic tubular	0.0047 uF	400V	J	1	
CNT5	4428525780	Wafer 2P				1	
CNT501	4428525540	Wafer 4P				1	
D501-505	2258100135	1N4002, Rectifier				5	
D506	2258599115	Zener UZ 6.2BSB				1	
D507	2058306101	1N4148, Switching				1	
F3	5508202821	Fuse NB 3.5A 125V 20mm				1	

Ref. No.	Parts No.	Description				Q'ty	Version
F3	5508202830	Fuse NB 3.5A 250V 20mm				1	
F3	5508302835	Fuse T 3.5A 250V 20mm				1	
F4	5508202221	Fuse NB 1.5A 125V 20mm				1	
F4	5508202230	Fuse NB 1.5A 250V 20mm				1	
F4	5508302235	Fuse T 1.5A 250V 20mm				1	
Q501/502	2208606113	MPSA56,Regulating				2	
RLY501	5528001620	Stan-By Relay Original				1	
R501	3069103970	Carbon Film	10k	1/5W	J	1	
R502	3069100970	Carbon Film	10	1/5W	J	1	
R503	3069561970	Carbon Film	560	1/5W	J	1	
R504	3009335373	Metal Film	3.3M	1/2W	J	1	
R505	3069332970	Carbon Film	3.3k	1/5W	J	1	
R506	3069102970	Carbon Film	1k	1/5W	J	1	
P1-3	**054010310021**	**Ass'y P.C.B Speaker Selecter**					
40	4628058410	Switch Push (Speaker)				1	
41	4438004410	Jack Phone (Black)				1	
CNT202B	436203263461	Lead Ass'y 260mm 3P				1	
CNT203B	436204363461	Lead Ass'y 360mm 6P				1	
SLT5	4359855035	CTB 0315 LV Diamond DL B#16				1	
R701L/R	3029471572	Metal Film	470	2W	J	2	
P1-4	**054011010028**	**Ass'y P.C.B Volume**					
43	3228013810	VR Motor				1	
44	4628058310	Switch Push (Loud)				1	
C616L/R	3679563120	Mylar	0.056 uF	100V	J	2	
C617L/R	3579151130	Ceramic Disc	150 pF	50V	J	2	
C618/619	3479310131	Electric SG	100 uF	16V	M	2	
C620	3479347041	Electric SG 47 uF 25V M				1	
SLT101	436206243332	Lead Ass'y 240mm 6P				1	
CNT601B	4428505810	Wafer 6P				1	
CNT703	4428516310	Wafer 4P				1	
IC603	2168007204	TA7291S, Motor Control				1	
R618L/R	3069622970	Carbon Film	6.2k	1/5W	J	2	
R619L/R	3069333970	Carbon Film	33k	1/5W	J	2	
R620	3069103970	Carbon Film	10k	1/5W	J	1	
R621	3069472970	Carbon Film	4.7k	1/5W	J	1	
R624	3069470970	Carbon Film	47	1/5W	J	1	
P1-5	**054010410033**	**Ass'y P.C.B Rec Out**					D,E,F
57	4408105810	Terminal Speaker				1	C,D,E,F
CNT201C	4428517610	Wafer 3P				1	
CNT201D	4428517610	Wafer 3P				1	
P1-6	**054010310021**	**Ass'y P.C.B Speaker**					C,D,E,F,G
56	4438103410	RCA Jack				1	D,E,F
C152	3679222120	Mylar	0.0022 uF	100V	J	1	
C153/154	3679472120	Mylar	0.0047 uF	100V	J	2	
C156	3679222120	Mylar	0.0022 uF	100V	J	1	
C158	3679472120	Mylar	0.0047 uF	100V	J	1	
C160	3679472120	Mylar	0.0047 uF	100V	J	1	
CNT203A	4428517910	Wafer 6P				1	
CNT204A	4428517710	Wafer 4P				1	
P1-7	**054010210034**	**Ass'y P.C.B Power Selector**					B. (Only)
54	4618006610	Switch Voltage				1	
55	4618006510	Switch Voltage				1	
CNT7	4428525800	Wafer AC 4P				1	
CNT8	4428525790	Wafer AC 3P				1	
CNT9	4428525780	Wafer AC 2P				1	
F5	5508102821	Fuse, SB 3.5A 125V				1	
F6	5508102830	Fuse, SB 3.5A 250V				1	
F7	5508102821	Fuse, SB 3.5A 125V				1	
F8	5508102830	Fuse, SB 3.5A 250V				1	
P1-8	**054011010029**	**Ass'y P.C.B Volume Indicator**					
CNT702B	436202202132	Lead Ass'y 200mm 2P				1	
D751	2371124701	SLR34URC, LED Red				1	
	054011010013	**ASS'Y P.C.B COMMANDER**					
C1	3409247022	Electric SS	47 uF	10V	M	1	
D1	2058306101	1N4148, Switching				1	
D2	2371124701	SLR34URC, LED Red				1	
IC001	2138013122	UPD6122G, Remote Control				1	
Q1	2208606112	KTD1302S				1	
R1	3069471970	Carbon Film	470	1/5W	J	1	
R2	3069100970	Carbon Film	10	1/5W	J	1	
R3-R7	3069224970	Carbon Film	220k	1/5W	J	5	

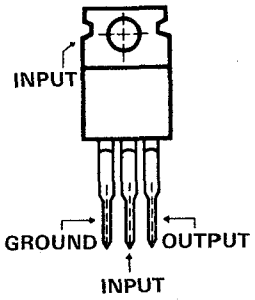
SEMICONDUCTOR LEAD IDENTIFICATION AND INTERNAL DIAGRAM

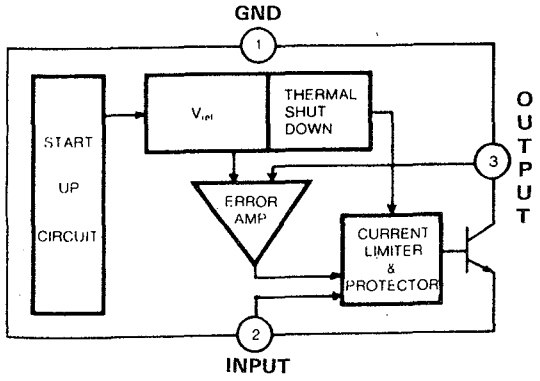
IC401 : μPD75216

VDD S4 S5 S6 S7 S8 S9 VPRE(NC*) VLOAD T15/S10 T14/S11 T13/S12/PH0 T12/S13/PH1 T11/S14/PH2 T10/S15/PH3 T9 T8 T7 T6 T5 T4 T3 T2 T1 T0 RESET P53 P52 P51 P50 XT2 XT1
μPD75216-XX
S3 S2 S1 S0 P00/INT4 P01/SCK P02/SO P03/SI P10/INT0 P11/INT1 P12/INT2 P13/T10 P20 P21 P22 P23/BUZ *MD0/P30 *MD1/P31 *MD2/P32 *MD3/P33 P60 P61 P62 P63 P40 P41 P42 P43 PPO X1 X2 VSS

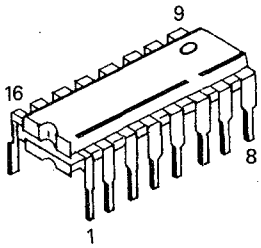


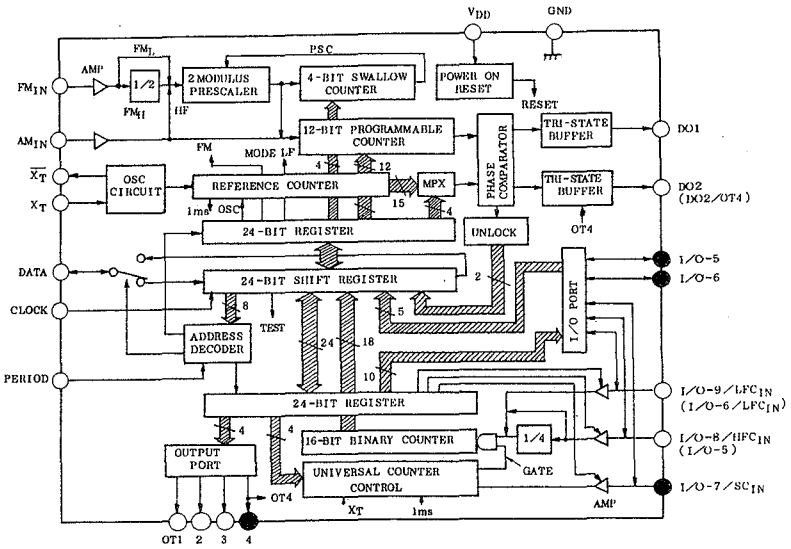
GD7915





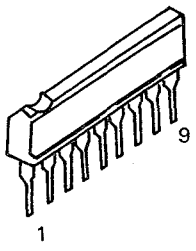
TC9216P

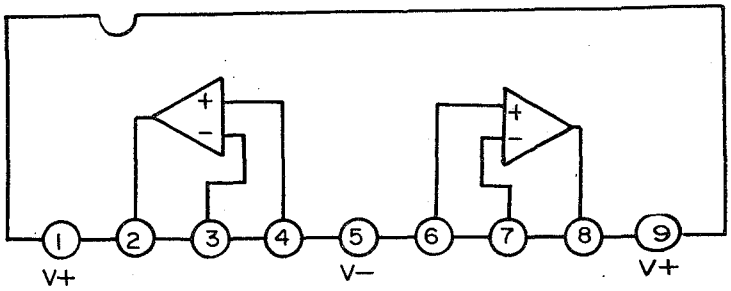




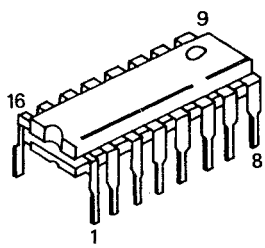
KIA75559S

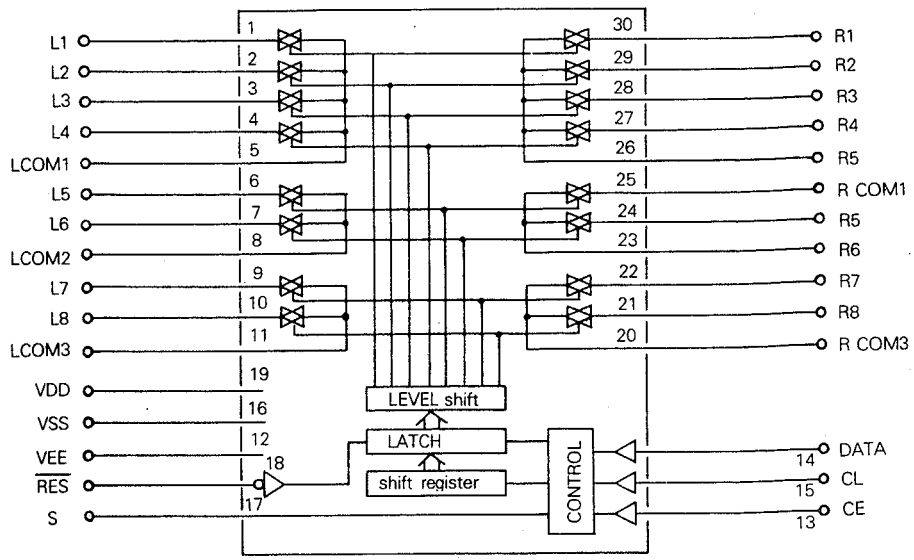
(1)



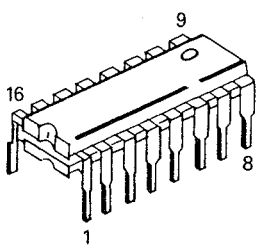


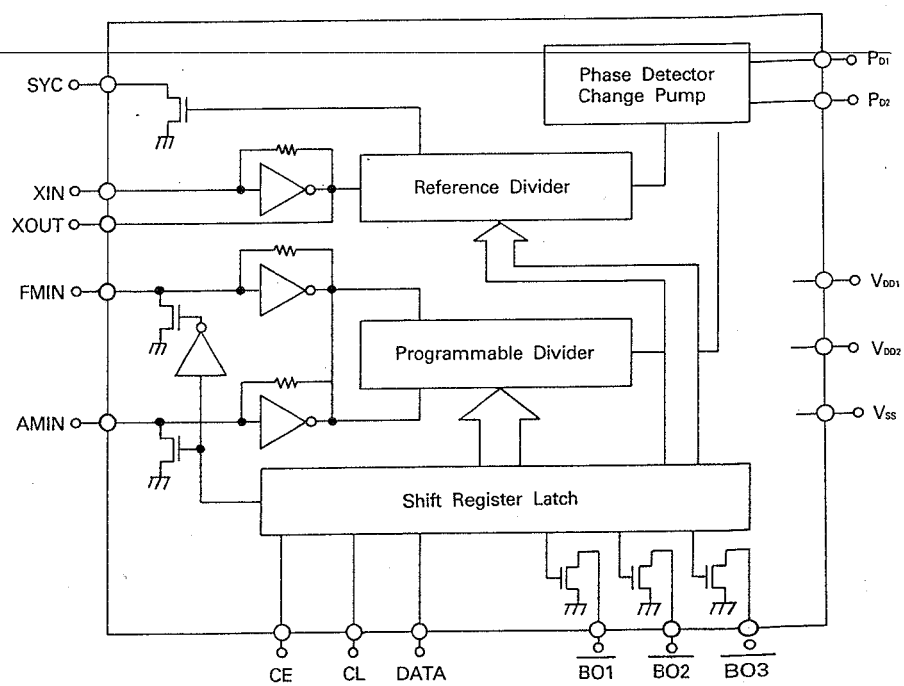
LC7821



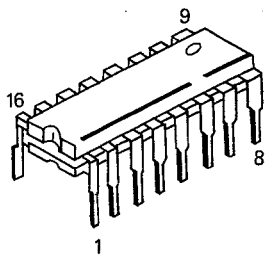


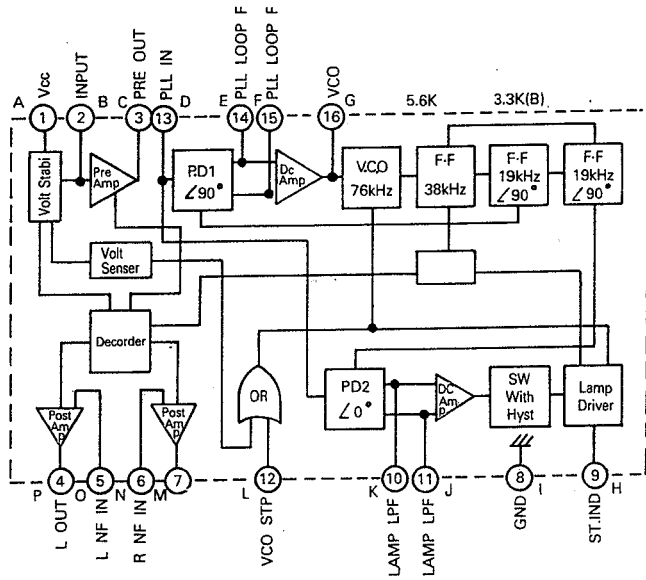
LM7001



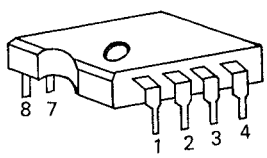


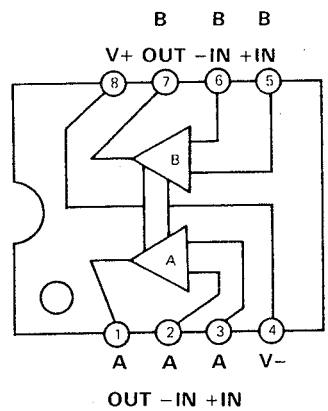
HA12016



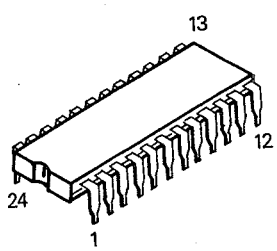


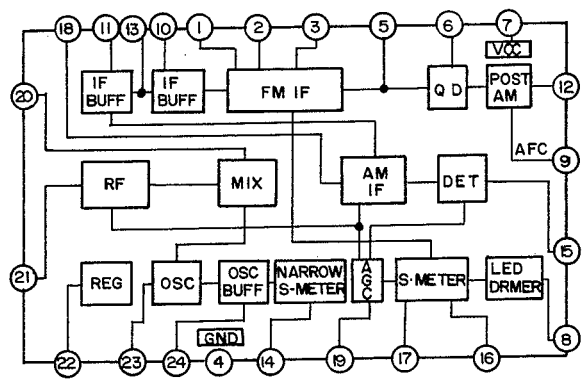
KIA4559S(OP AMP)



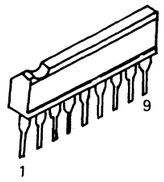


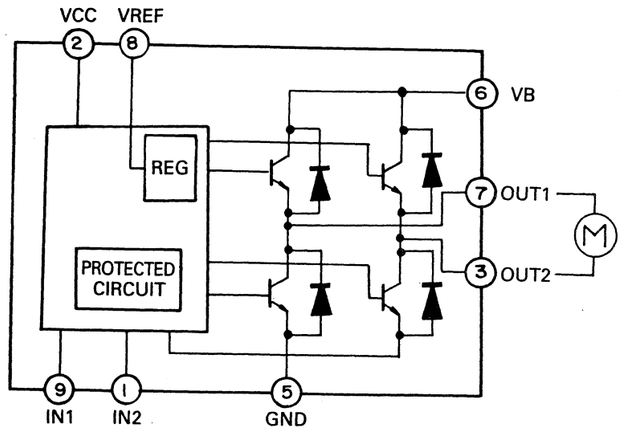
LA1266



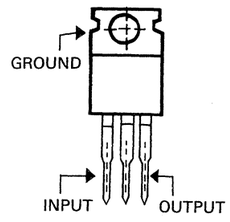


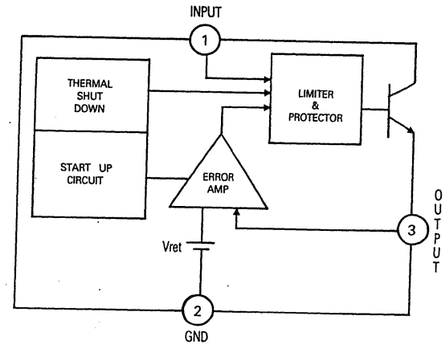
TA7291S



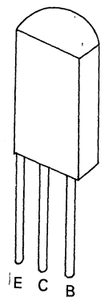


GD7815
GD7806

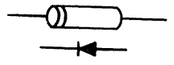




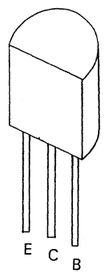
KTC2229



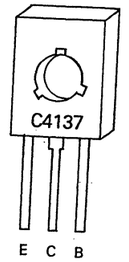
IN5402
IN4148
IN4002



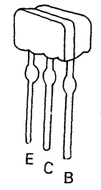
LM9018
2SK1680
MPSA55
MPSA06



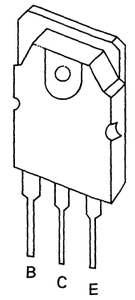
2SC4137



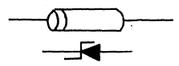
DTA114Y
DTC114Y
DTC114T
DTC114TS



2SA3854
2SA1490

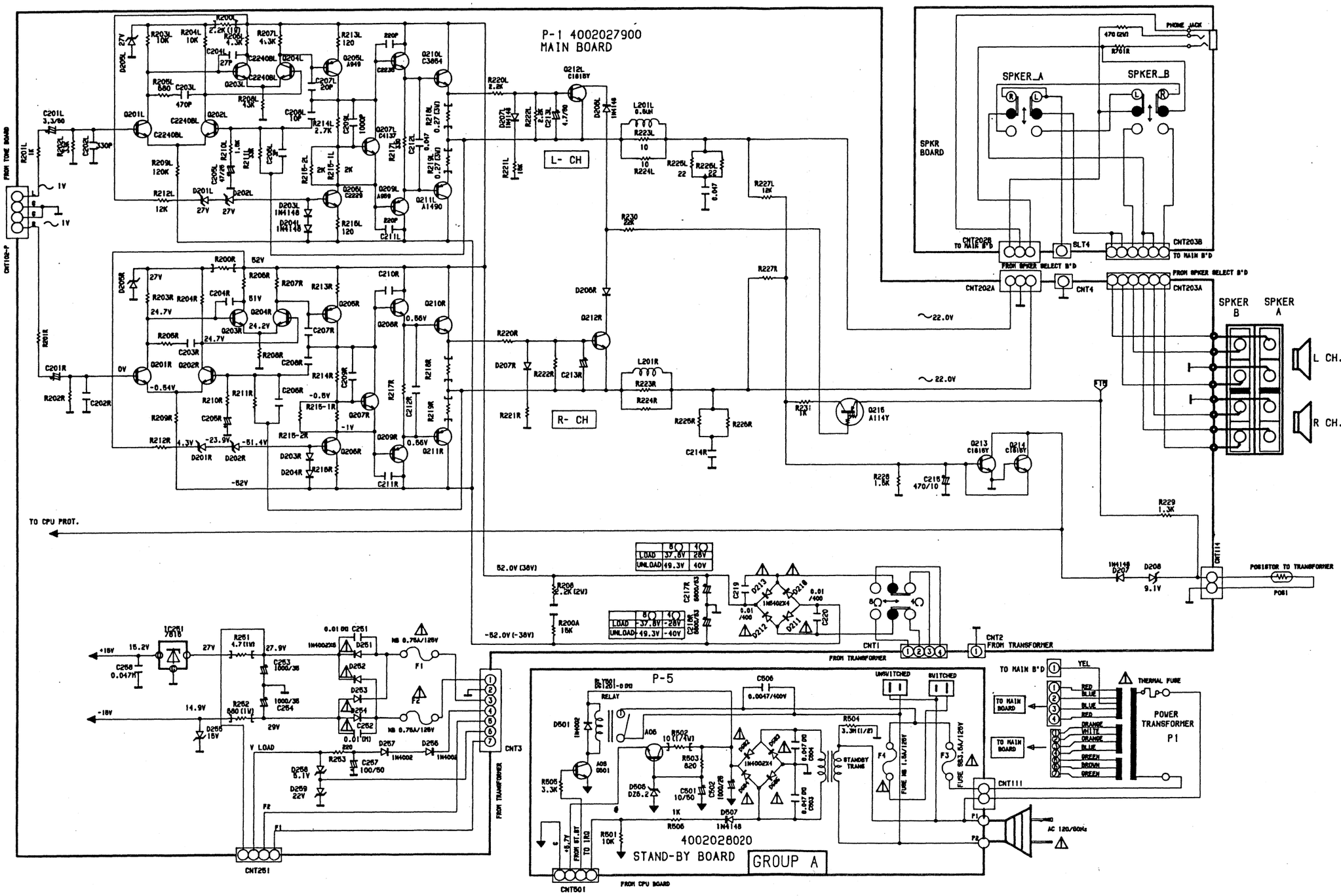


DZ 4.3BS DZ12BM
DZ 5.1BS DZ9.1VBSC
DZ 6.8BS DZ11BM
DZ16BL



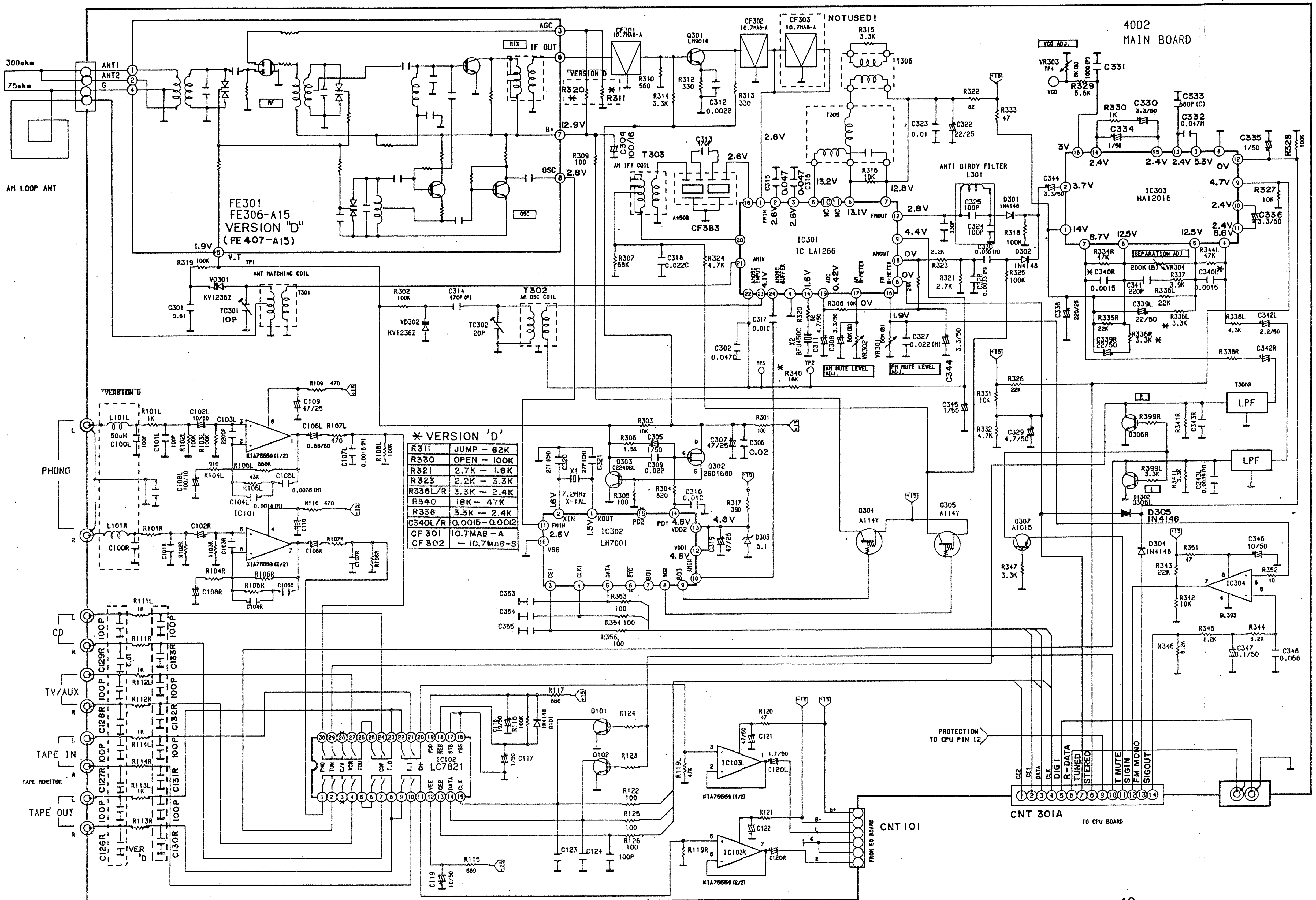
SCHEMATIC DIAGRAM I

Model No. : RX-4030R



SCHEMATIC DIAGRAM Ⅱ

Model No. : RX-4030R

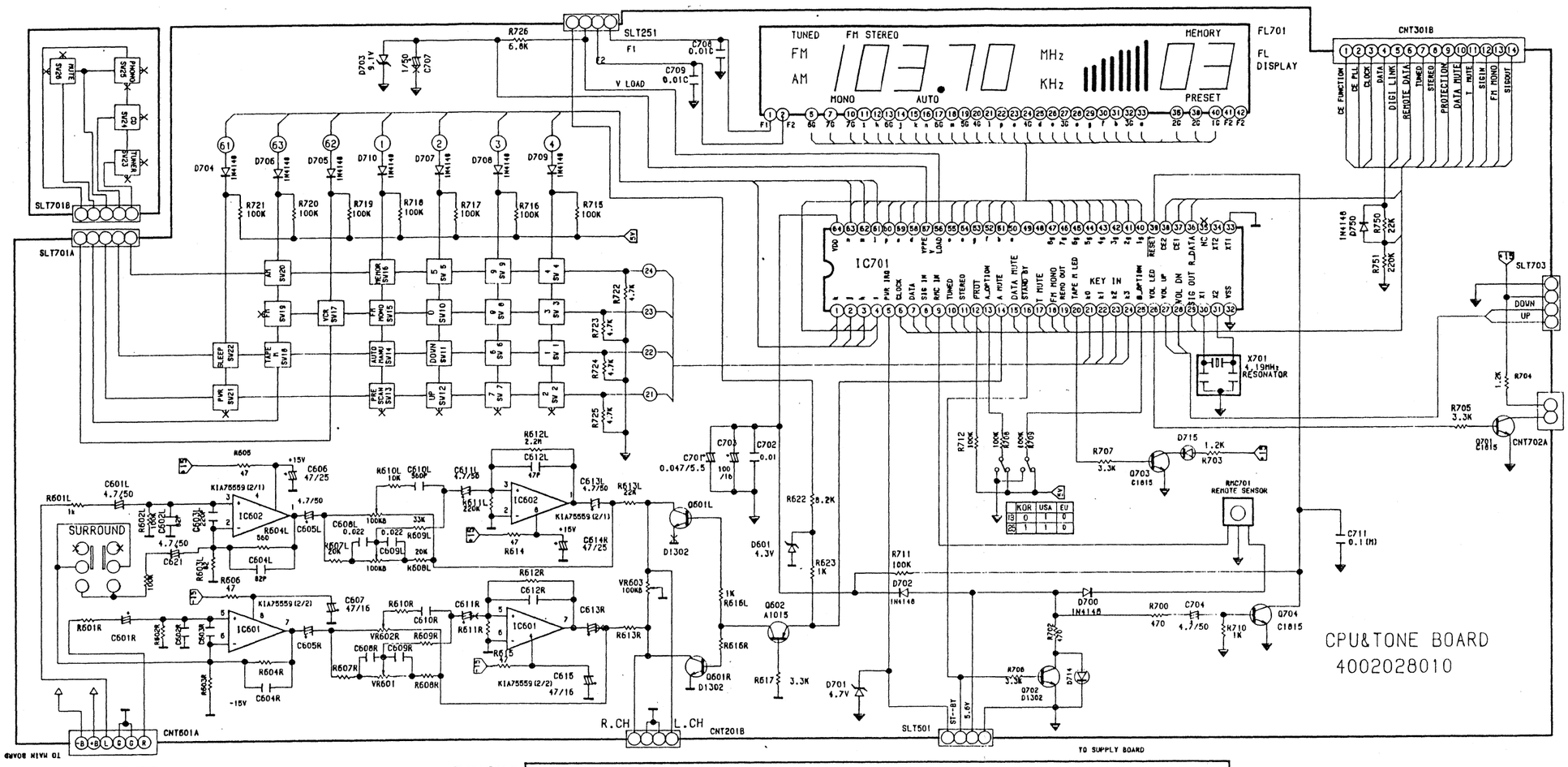

4002
MAIN BOARD
300ohm
75ohm
ANT1
ANT2
G
AM LOOP ANT
AGC
MIX
IF OUT
VERSION D
RF
OSC
B+
12.9V
2.8V
FE301
FE306-A15
VERSION "D"
(FE407-A15)
1.9V
V.T
TP1
R319 100K
ANT MATCHING COIL
VD301
KV1236Z
TC301
10P
C301
0.01
T301
CF301
10.7MA8-A
Q301
LM9018
CF302
10.7MA8-A
CF303
10.7MA8-A
NOTUSED!
R315
3.3K
T306
R310
560
R312
330
R314
3.3K
C312
0.0022
R313
330
R309
100
C304
100/16
T303
AM IFT COIL
C313
470P
CF383
2.6V
C315
0.047
C316
0.047
13.2V
R316
10K
12.8V
13.1V
FMIN
FMOUT
IC301
IC LA1266
AMIN
AMOUT
AMOSC INPUT
AMOSC BUFFER
AGC
AM S-METER
FM S-METER
4.1V
1.6V
0.42V
0V
1.9V
4.4V
R307
68K
C318
0.022C
R324
4.7K
R302
100K
C314
470P (P)
T302
AM OSC COIL
VD302
KV1236Z
TC302
20P
C317
0.01C
C302
0.047C
R340
18K
TP3
TP2
X2
BFU450C
R320
82
C311
4.7/50
C308
3.3/50
VR302
50K (B)
VR301
50K (B)
C327
0.022 (M)
C344
3.3/50
AM MUTE LEVEL ADJ.
FM MUTE LEVEL ADJ.
R308 10K
C323
0.01
C322
22/25
R322
82
R333
47
ANTI BIRDY FILTER
L301
C325
100P
C324
100P
330P
D301
1N4148
R318
100K
C330
0.068 (M)
D302
1N4148
R325
100K
R323
2.2K
R321
2.7K
C328
0.0033 (M)
VCO ADJ.
VR303
5K (B)
TP4
VCO
R329
5.6K
C331
1000 (P)
R330
1K
C330
3.3/50
C334
1/50
C333
680P (C)
C332
0.047M
C335
1/50
R328
100K
IC303
HA12016
3V
14V
3.7V
2.4V
5.3V
4.7V
8.7V
12.5V
8.6V
R327
10K
C336
3.3/50
C344
3.3/50
SEPARATION ADJ
R334R
47K
R344L
47K
200K (B)
VR304
R337
3.9K
C340R
C340L
0.0015
C341
220P
R335L
22K
C339L
22/50
R336L
3.3K
R335R
22K
R336R
3.3K
C339R
22/50
C338
220/25
R338L
4.3K
C342L
2.2/50
R338R
C342R
T306R
LPF
R326
22K
R331
10K
R332
4.7K
C329
4.7/50
C345
1/50
Q306R
R399R
R341R
C343R
R399L
3.3K
R341L
3.3K
C343L
0.0039 (M)
Q306L
D305
1N4148
D304
1N4148
Q307
A1015
R347
3.3K
R351
47
R343
22K
IC304
GL393
R342
10K
C346
10/50
R352
10
R345
8.2K
R344
8.2K
R346
8.2K
C347
0.1/50
C348
0.068
R303
10K
R301
100
R306
1.5K
C305
1/50
C307
47/25
C306
0.02
Q303
C2240BL
C309
0.022
Q302
2SD168D
C320
C321
27P (CH)
X1
7.2MHz
X-TAL
R305
100
R304
820
C310
0.01C
R317
390
D303
5.1
C319
47/25
IC302
LM7001
XIN
XOUT
PD2
PD1
FMIN
VSS
VDD2
VDD1
AMIN
CE1
CLK1
DATA
STC
BO1
BO2
BO3
1.6V
1.5V
4.8V
Q304
A114Y
Q305
A114Y
C353
C354
C355
R353
100
R354 100
R355
100
VERSION D
PHONO
L101L
50uH
C100L
R101L
1K
C101L
100P
C102L
10/50
C103L
R102L
100K
R103L
100K
2200P
KIA76559 (1/2)
KIA76559 (2/2)
C109
47/25
R109 470
C106L
0.68/50
R107L
470
C107L
0.0015 (M)
R108L
100K
C108L
100/10
R104L
910
R106L
560K
43K
R105L
C105L
0.0056 (M)
C104L
0.0018 (M)
IC101
R110 470
C110
L101R
C100R
R101R
C101R
R102R
C102R
R103R
C103R
C106R
R107R
C107R
R108R
R104R
C108R
R105R
C105R
C104R
CD
TV/AUX
TAPE IN
TAPE MONITOR
TAPE OUT
R111L
R111R
R112L
R112R
R113L
R113R
R114L
R114R
1K
C126R
C127R
C128R
C129R
C130R
C131R
C132R
C133R
100P
VER 'D
IC102
LC7821
PHO
TUN
C/A
VCR
TOU
CDP
T.O
T.I
CH-
VDD
RES
STB
VSS
VEE
CE2
DATA
CLK
R117
560
C118
10/50
R116
100K
1N4148
D101
C117
1/50
Q101
Q102
R124
R123
R122
100
R125
100
R126
100
C123
C124
100P
R115
560
C119
10/50
R119L
47K
IC103L
R120
47
C121
47/50
C120L
4.7/50
R121
C122
R119R
IC103R
C120R
CNT 101
FROM EQ BOARD
B+
B-
L
C
R
PROTECTION
TO CPU PIN 12
CE2
CE1
DATA
CLK
DIG I
R-DATA
TUNED
STEREO
T MUTE
SIGIN
FM MONO
SIGOUT
CNT 301A
TO CPU BOARD

✱ VERSION 'D'

R311	JUMP – 62K
R330	OPEN – 100K
R321	2.7K – 1.8K
R323	2.2K – 3.3K
R336L/R	3.3K – 2.4K
R340	18K – 47K
R338	3.3K – 2.4K
C340L/R	0.0015–0.0012
CF 301 CF 302	10.7MAB – A – 10.7MAB-S

SCHEMATIC DIAGRAM Ⅲ

Model No. : RX-4030R



	KOR	USA	EU
DS	0	1	0
	1	1	0

NOTES

1. All resistors are 1/4 watt or 1/5 watt 5% unless marked. Otherwise Resistor values are in ohms(K=1000 ohms, M=1000k ohms).
2. All capacitor values are in microfarads.(P=picofarads).
3. Each DC voltage shows the nominal values in volts no input signal.
4. Is Safety Part. USA only replacement parts recommended by the manufacturer.
5. This is a basic schematic diagram.